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LETTERS TO THE EDITOR

A General Price Index for the American Economy

What this country needs is a good price index cover-
ing *all* goods and services. People are continually dis-
cussing the "general price level" and the "value of
the dollar," but what they cite as a measure is just
the much-abused Consumers' Price Index. Here's an
example from *Time*, May 21, 1951 (p. 105): *The
54c Dollar.*

If in the depression years 1935-39 the U. S. dollar
was worth $1 in buying power (it) is now worth only
54c, the Bureau of Labor Statistics reproted last week.

Similarly, the Mutual Life Insurance Company of
New York measures "inflation" by "the 81% price
increase in this country since 1940" *(Points,* May,
1951).

Both these references used the consumers' price in-
dex, but no mention is made in either case of that
index or its limitations. Well, what every statistician
knows, and what the BLS has been pounding on for
years, is that this index only purports to measure the
prices of a fixed bill of goods bought by moderate
income families in large cities, etc. It doesn't pretend
to represent the prices paid by other consumers, or
those paid by business and government, all of which
affect the general price level. Then what price index
does include these factors?

The Department of Commerce people are now mak-
ing a fine attempt to deflate their gross national prod-
uct estimates, and have published preliminary results
by years from 1929 to 1950 in the *Survey of Current
Business* for January, 1951. But there they stop. Why
not compute macro-price indexes from these figures?

Like the spectator who aids the marathon runner
over the last steps of his race, therefore, let us divide
the GNP dollar values by the deflated figures to yield
a price index covering *all* the nation's expenditures
for goods and services. Similar price indexes can be
computed for the four main components and eight
major sub-groups of gross national product for each
year since 1929.[1]

The GNP price indexes are as valid as the GNP
estimates themselves. Perhaps more valid, since the
errors common to both GNP series will tend to cancel
out in their ratio.

The GNP data of course contain errors but are
widely used because of their broad conceptual value.
The GNP price indexes have a similar value. They
take into account many types of prices besides those
in the consumer's price index — such as prices paid
by farmers, wholesale prices and construction costs —
each one being neatly weighted by its share in GNP.
The composite price therefore seems to be a better
measure of the "general price level" and the "value
of the dollar" than does the CPI alone.

NEWS

ASA to advise Division of Statistical Standards on U. S. Statistical Policy —1952 Annual Meeting Program Committee—Fellowships and positions available—

ASA Advisory Committee on Statistical Policy

The American Statistical Association has organized an Advisory Committee on Statistical Policy to the Division of Statistical Standards, Bureau of the Budget. The committee, composed of past presidents of the ASA, was established at the request of the Division of Statistical Standards. It will advise the Division and through it the Federal Statistical system on broad matters of public policy in the statistical area. Its members are E. A. Goldenweiser (chairman), Simon Kuznets, Isador Lubin, Frederick C. Mills, William F. Ogburn, Lowell J. Reed, and Samuel S. Wilks. William J. Carson of the National Bureau of Economic Research serves as Secretary to the Committee, and Stanley Lebergott of the Division of Statistical Standards as Assistant Secretary.

The first meeting of the committee, held on October 9, was devoted primarily to discussion of problems which arise from the confidential status accorded by Federal agencies to individual returns. One of the recommendations of the Hoover Commission task force on statistical agencies was that the Division of Statistical Standards, with the collaboration of interested Federal agencies and with the participation of experts from outside the government, undertake a study: "To determine to what degree provisions concerning the confidential character of certain reports to Federal agencies make for duplication of activities and for heavier burdens on respondents; to explore means by which such information can be placed at the disposal of other Federal agencies under rules affording proper protection to individual respondents."

The committee had for its consideration a memorandum on "Confidentiality and the Development of Federal Statistical Policy," prepared by the Division of Statistical Standards. Various aspects of the problem were discussed by representatives of statistical agencies particularly concerned: Bureau of Agricultural Economics, Bureau of the Census, Bureau of Labor Statistics, Federal Trade Commission and Office of Price Stabilization. Before submitting its recommendations for consideration by the Division of Statistical Standards, the committee plans further investigation into the problem of the confidential status of individual returns as it affects the collection and use of data by Federal agencies.

Items for the committee's agenda are suggested both by individual members of the committee and by the Division of Statistical Standards. Other issues which the committee will investigate at later meetings include the use of mandatory provisions by Federal statistical agencies for collecting statistical reports, and the problems involved in statistical and related research conducted for Federal agencies by nongovernmental organizations.

The 1952 Annual Meeting Program Committee

Aryness Joy Wickens, President-Elect for 1952, has announced the appointment of Alfred N. Watson of the Curtis Publishing Company in Philadelphia, Pennsylvania, as Chairman of the 1952 Annual Meeting Program Committee.

The constitution of the American Statistical Association provides that the past president, the vice presidents and the chairmen of the section shall be exofficio members of the Program Committee. Therefore, Lowell J. Reed, Morris H. Hansen, Philip M. Hauser and Alexander M. Mood are the exofficio members of the Committee who are already known. Representatives of the sections will be named later.

Additional members will be added to the Committee from time to time to give advice on special matter fields or to handle special assignments such as exhibits, etc.

Transportation to the 27th Session of the International Statistical Institute

For those statisticians interested in participating in the 27th Session of the International Statistical Institute being held in India, December 5 to 18, special arrangements have been made by the International Statistical Institute for a plane to go from London. The plan to charter a special plane can materialize only if the number of seats booked reaches approximately 40. It is proposed that the plane be a Constellation and that arrangements be made for it to leave London on December 1 and to make stops in Paris, Rome, Geneva or Cairo to pick up additional passengers. The round trip fare from London will be approximately $500.00 in United States currency. For United States' participants taking advantage of off-season for transatlantic flights, the total cost would be around $1,000.00 (regular in-season fare, New York—India $1,400.00).

Educational Testing Service Research Fellowships Available

The Educational Testing Service is offering for 1952-53 its fifth series of research fellowships in psychometrics leading to the Ph.D. degree at Princeton University. Open to men who are acceptable to the Graduate School of the University, the two fellowships each carry a stipend of $2,375 a year and are normally renewable.

Fellows will be engaged in part-time research in the general area of psychological measurement at the offices of the Educational Testing Service and will, in addition, carry a normal program of studies in the Graduate School. Competence in mathematics and psychology is a pre-requisite for obtaining these fellowships. The closing date for competing applications is January 18, 1952. Information and application blanks will be available about November 1 and may be obtained from: Director of Psychometric Fellowship Program, Educational Testing Service, 10 Nassau Street, Princeton, New Jersey.

Junior Professional Assistant Examination Announced

Positions as statistician, economist, and social science analyst are among those for which the Civil Service Commission has announced open examinations.

The positions will be filled at a yearly salary of $3,100 and are directed toward college senior and graduate students.

Applications will be accepted by the Commission's Washington office until November 13, 1951. Forms are available from local post offices and Civil Service regional offices.

Techniques of Preparing Problems for High Speed Digital Computing Machinery

The Special Training Division of the Oak Ridge Institute of Nuclear Studies is cooperating with the Oak Ridge National Laboratory to give a course in the techniques of preparing problems for high speed digital computing machinery. From December 3 through 14, 1951 a limited group of 30 participants will work under Alton S. Householder, Chief of the Mathematics Panel at Oak Ridge National Laboratory. Assisting him will be staff members of Argonne National Laboratory, the Los Alamos Scientific Laboratory, the Computer Branch of the Office of Naval Research, and the Institute for Advanced Study.

The course will be centered around the computing machine to be installed at Oak Ridge National Laboratory, although modifications of machines and preparation techniques will be discussed. The Oak Ridge machine will be an electronic automatic computer, single address type, patterned after the one at the Institute for Advanced Study.

A registration fee of $25.00 will be charged and participants are expected to pay their own living and traveling expenses. Application blanks and additional information may be obtained from Ralph T. Overman, Chairman, Special Training Division, Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tennessee.

Awards for Post-Doctoral Study in Statistics At the University of Chicago

The Committee on Statistics (a department) of the University of Chicago has established, under a five-year grant from the Rockefeller Foundation, a program of Post-doctoral Awards to provide training and experience in statistics for scholars whose main interests lie outside that field. There will be three Awards per year to holders of the doctorate or equivalent in the biological, the physical, and the social sciences. Each Award will be $4,000 or slightly more, office space will be provided, and $600 to $1,000 will be available for clerical, computational and research assistance. There will be no tuition charges.

The purpose of the Awards is to give statistical training to a few scientists who may be expected to employ it both to the direct advance of their specialties and to the enlightenment of their colleagues and students by example, by consultation, and by formal instruction. The development of the field of statistics has been so rapid that problems of communication are a serious obstacle to its full exploitation. The amount and quality of instruction available to young students is constantly increasing, but there is a real need, which these Awards seek to fill, for making appropriate instruction available to already established scientific workers who give promise of immediate applications of statistics to their special fields.

Recipients of the Awards must have received the doctor's degree prior to commencing the program, except in the case of recognized research workers whose experience and accomplishments are clearly the equivalent. Candidates whose mathematical preparation includes less than the usual sophomore year of calculus, or its equivalent, will not ordinarily be considered, but previous training in statistics is not required or expected. Candidates having under way research programs in their own fields will be preferred, and the department of the University of Chicago concerned with a candidate's specialty will be asked to participate in evaluating his application. Recipients must spend eleven months studying statistics at the University of Chicago, and will be expected to pursue a number of regular courses.

Applications, or requests for further information, should be sent to: Committee on Statistics, University of Chicago, Chicago 37. Applications for the academic year 1952-53 should arrive by April 1, 1952.

Food Research Institute Offers Aid to Graduate Students

The Food Research Institute, Stanford University, has inaugurated a program of graduate studies leading to the degree of Doctor of Philosophy in Agricultural Economics Research. Two or three Research Assistantships will be awarded for 1952-53 to enable studies in the Institute. Annual stipends will be $1,500 to $2,000; the awards are renewable.

Data from 1949 and 1950 Annual Surveys of Manufacturers

Estimates of the industrial and geographic distribution of manufacturing activity during 1949 have been released in recent months by the Bureau of the Census. These estimates, based on the 1949 Annual Survey of Manufactures, provide data for 1949 and comparable data for 1947 on: value of shipments of selected classes of products; expenditures for new plant and equipment, by industry group; general statistics (manufacturing employment, payrolls, man hours, and value added by manufacture) for industry groups and selected industries; general statistics for geographic divisions and states, by major industry groups; and metals consumed by metal product producers, for selected industries.

Similar releases, based on the 1950 Annual Survey of Manufactures, are expected to become available before the end of the year. The releases for 1950 will include, in addition to the topics covered in those for 1949, estimates of manufacturers' inventories, by industry group; and, for selected industries, the number of establishments, employees, and value added by manufacture, distributed by employment size.

The 1949 and 1950 estimates are published in series of reports numbered MAS-49 and MAS-50. Copies of the separate releases may be obtained upon request from the Industry Division, Bureau of the Census, Washington 25, D. C.

·Since the Census of Manufactures is now taken at intervals of five years instead of two years, the Annual Surveys of Manufactures are designed to provide a current series of the key statistical measures of industrial activity. Out of a total of approximately 240,000 manufacturing establishments, the surveys cover approximately 45,000, including all large plants and a representative sample of the much more numerous small plants. The large plants included in the surveys account for approximately two thirds of the total manufacturing employment in the United States.

Although no geographic statistics below the State level will be available from the Annual Surveys of Manufactures, 1949 county statistics will be published later this year. These statistics are based on Bureau of Old-Age and Survivors Insurance data which have been coordinated with data from the 1949 Annual Survey of Manufactures for consistency in classification, coverage, and statistical accuracy. The county statistics will be issued as a joint publication of the Bureau of Old-Age and Survivors Insurance and the Bureau of the Census. The releases will, in general, have the same format as the *County Business Patterns* formerly published by the Bureau of Old-Age and Survivors Insurance, but will be limited in scope for 1949 to the manufacturing segment of the economy. As in the past, they will be available for purchase from the Suerintendent of Documents, Government Printing Office, Washington 25, D. C.

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MURRAY D. DESSEL
Industry Division, Bureau of the
Census, Department of Commerce

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Publication of State Data on Manufacturing Shipments

The Bureau of the Census has published a series of releases showing 1947 value of shipments of manufactured products, by Geographic Division and State. The 1947 Census of Manufactures volumes presented figures for approximately 6,000 individual product items, grouped into slightly more than 1,000 broad product classes. These figures were published on a national basis, and since their release the need for similar commodity information by State has become apparent. The Census Bureau some time ago completed most of the work involved in preparation of product-class statistics by State, but lacked funds to complete the job. Publication of the State figures was made possible through sponsorship of part of the work by the Federal Trade Commission.

The State figures have been published in 20 separate releases, each dealing with one major industry group and including the product classes primary to that group. The 20 major industry groups are: food and kindred products; tobacco manufactures; retail mill products; apparel and related products; lumber and wood products (except furniture); furniture and fixtures; paper and allied products; printing and publishing industries; chemicals and allied products; petroleum and coal products; rubber products; leather and leather products; stone, clay and glass products; primary metal industries; fabricated metal products; machinery (except electrical); electrical machinery; transportation equipment; instruments and related products; and miscellaneous manufactures. In addition, a summary report is being issued, including State figures for 890 product classes in all manufacturing industries.

Copies of the releases may be obtained from the Industry Division, Bureau of the Census, Washington 25, D. C.

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VIVIAN EBERLE SPENCER
Industry Division, Bureau of the
Census, Department of Commerce

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Study of Interstate Workers

The Bureau of Employment Security, Department of Labor, is conducting a sample survey of interstate claimants for unemployment insurance benefits and of multistate workers to determine the number of claimants who have had base-period wages in two or more States and the effect on benefit rights of different methods of combining these wages. The study is being conducted in the employment security agencies of ten states: California, Connecticut, Georgia, Illinois, Iowa, Mississippi, New Jersey, Oregon, Pennsylvania, and West Virginia. Three of these States (California, Pennsylvania and Illinois) were selected because of the large volume of claims they handle; the other seven were selected objectively on the basis of probability proportionate to volume of claims.

The study is being made in cooperation with the Interstate Benefit Payments Committee of the Interstate Conference of Employment Security Agencies. The basic data are being gathered by the sample States and will be tallied, summarized and analyzed by the Bureau of Employment Security. This analysis may suggest the need for different samples at different times of the year.

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MARVIN BLOOM
Division of Program Standards, Bureau of
Employment Security, Department of Labor

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Revision in Classification System for Labor Market Areas

The importance of a balanced geographic distribution of defense and other essential manpower requirements has made it necessary for the Bureau of Employment Security, Department of Labor, to revise its area classification structure. Since World War II, labor market areas have been classified primarily to reflect the relative extent of unemployment. These classifications were used as one of the indicators of the well-being of our national economy, and when unemployment began to rise in 1949 they were used to identify areas of heavy unemployment in connection with the President's "depressed area program." At the present time, needs of the defense program require that the classification reflect the adequacy of the over-all labor supply.

The new classification system was developed with the assistance of representatives of several State employment security agencies. It is based primarily upon the labor demand-supply outlook for two and four months to come; the rapidity of the manpower build-up of essential industries; the proportion of employment in essential activities to total employment; and the degree to which essential production is threatened by a shortage or an impending shortage of labor. Labor market areas are grouped in four classes: *Group I—Areas of labor shortage,* in which labor shortages existing or expected to occur in the near future may impede essential activities; *Group*

II—*Areas of balanced labor supply*, in which the current and prospective labor demand and supply are approximately in balance; *Group III—Areas of moderate labor surplus*, in which the current and prospective labor supply moderately exceed labor requirements; and *Group IV— Areas of substantial labor surplus*, in which the current and prospective labor supply substantially exceeds labor requirements.

The revised classification for labor market areas was adopted by the Bureau of Employment Security beginning with the July classification list, and first published in the August 1951 issue of *The Labor Market and Employment Security*. This issue contains a detailed description of the criteria developed for the assignment of an area to one of the four groups in the classification system.

V. D. CHAVRID
Division of Reports and Analysis, Bureau of
Employment Security, Department of Labor

Analysis of the Work Components of Jobs

The Purdue Research Foundation of Purdue University has entered into a contract with the Bureau of Employment Security, Department of Labor, for an intensive study of the components involved in certain occupations. The contract is sponsored by the Department of the Air Force. Growing shortages in key occupations in recent months have highlighted the importance of identifying elements which various jobs have in common, and which therefore control the potential extent of transferability and promotion through retraining. Research in this area has been limited because of the great complexity of job inter-relationships and the lack of suitable methods of analysis. In the Purdue project, the aim will be to identify the diverse components of selected clerical and metal-machining jobs and, if possible, to isolate the discrete, measurable units of such components. A variety of jobs of varying levels of skill and complexity will be analyzed.

One of the principal purposes to be served by this study is to derive guiding principles useful in a more extended validation of job classification structure. In this respect the study will supplement the factorial analysis of occupations now being conducted by the Bureau of Employment Security under sponsorship of the Air Force. It is believed that the identification of various "kinds" of units and their quantification may contribute materially to various other purposes, such as referral, selection and placement of workers; vocational guidance; wage and salary determination; and mobilization planning.

The analytical work at Purdue will be directed by Dr. Ernest J. McCormick, Occupational Research Center, Division of Education and Applied Psychology. The project has been approved by the Bureau of the Budget in its capacity as monitor of research in the field of interindustry economics and manpower (*The American Statistician*, April-May 1951, pp. 9-11).

ROBERT L. STEFFES
Division of Statistical Standards, Bureau of the Budget

1951 National Income Supplement

The Office of Business Economics in the Department of Commerce has published the 1951 National Income Supplement to the *Survey of Current Business*. This volume meets the need for a detailed discussion of the conceptual framework and of the statistical sources and methods underlying the United States national income statistics. It also contains a review of changes in national income and product since 1929, illustrated by a series of charts designed to further understanding of the composition and relation of the major aggregates; series on gross national product in constant dollars for the years 1929-50; and a complete set of statistical tables for 1929-50.

The present report contains all the national income statistics of the Office of Business Economics with the exception of the annual series on State income payments. Thus it will serve as a comprehensive base book, superseding all previously published series. The figures it contains will be brought up to date in the monthly *Survey of Current Business*.

Copies of the 1951 National Income Supplement may be obtained, at $1 a copy, from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

1951 Edition of the Occupational Outlook Handbook

A new edition of the *Occupational Outlook Handbook*, showing the changes mobilization efforts have made in the employment outlook in more than 400 occupations, was released in August by the Bureau of Labor Statistics, Department of Labor, in cooperation with the Veterans Administration. The Handbook includes information on the long-range outlook and on training, qualifications, earnings and working conditions in the occupations described.

An introductory section supplies a perspective for the reports on individual occupations by presenting the significant trends in the population and labor forces of the United States and in industrial and occupational distribution. Background data are also given for each of the major groups of occupations and industries discussed. A special index relates the occupations to broad fields of work, using the entry occupational classification of Part IV of the Dictionary of Occupational Titles.

Copies of the *Occupational Outlook Handbook* may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at $3 each, with a 25 percent discount for 100 or more copies.

MARGUERITE W. ZAPOLEON
Division of Manpower and Employment Statistics,
Bureau of Labor Statistics, Department of Labor

CHAPTER NOTES

NEW YORK

The program activities of this Chapter are being organized by each of the Division chairmen under the direction of the new President, Mortimer Spiegelman. The Biostatistics Division is headed by John W. Fertig, assisted by Donald Mainland. Business and Economics is headed by W. Braddock Hickman with Walter Mitchell, Jr. as assistant chairman. A. J. Jaffee is Chairman of Social Statistics with Hope Tisdale Eldridge as Vice-Chairman; Irving Lorge will preside over the Statistical Techniques Division, with Nathan Morrison as his assistant.

A highlight of the year will be a meeting describing the statistical activities of the United Nations. This is scheduled for the evening of Friday, February 15, 1952; members or neighboring chapters are invited. Further details of the meeting will be announced in this column in December.

The monthly STATISTICAL NEWS, issued by the Chapter, will list new sources of local data, positions open, and personal items, in addition to announcements of forthcoming meetings and other timely happenings.

ST. LOUIS

The first fall meeting of the St. Louis Chapter was held in September and dealt with "Problems in Relating Wage and Salary Levels to Rising Prices." Ewan Clague, Commissioner of Labor Statistics, U. S. Department of Labor, discussed the problems of compiling wage statistics and the important uses of these data in the process of collective bargaining and wage determination. The meeting was sponsored jointly by the Occupational Adjustment Division of the Social Planning Council of St. Louis.

The October meeting heard Francis G. Cornell, Director of the Bureau of Educational Research at the University of Illinois, discuss "Statistical Training Below the University Level."

The next meeting of the Chapter is planned for November 14th as a luncheon. Walter Thielecke, Chief Statistician of the Southwestern Bell Telephone Company, will speak on "Statistics As A Tool of Management." Mr. Thielecke will discuss some of the applications of statistics in the work of the largest St. Louis public utility firm and the importance of statistics for general problems of business management.

111th Annual Meeting of the AMERICAN STATISTICAL ASSOCIATION

December 27-29, 1951, Hotel Copley-Plaza, Boston, Massachusetts

THURSDAY—DECEMBER 27, 1951

9:30-11:30 A. M.   **Statistics in the Administration of Government Controls**

Business and Economic Statistics Section

Chairman: Lester S. Kellogg, Deere and Company

Papers   The Government's Statistical Program under Emergency Conditions
     Donald Riley, Division of Statistical Standards, Bureau of the Budget

Government Statistical Requests Under the Defense Program
     Theodore E. Veltfort, Advisory Council on Federal Reports

Discussion   Adolph G. Abramson, SKF Industries
Earl Constantine, National Association of Hosiery Manufacturers

9:30-11:30 A. M.   **Productivity at the National Level**

Business and Economic Statistics Section

Chairman: Solomon Fabricant, New York University

Papers   Productivity in the Soviet Union
     Irving H. Siegel, 20th Century Fund

Productivity in Puerto Rico
     Simon Rottenberg, University of Puerto Rico

International Comparisons of Real Per Capita Income
     J. B. D. Derksen, United Nations Statistical Office

Discussion   Henry G. Aubrey, New School for Social Research

9:30-11:30 A. M.   **General Social Statistics**

Committee on Statistics in the Social Sciences

Chairman: Harry Alpert, Division of Statistical Standards, Bureau of the Budget

Papers   Problems and Methods in Federal Statistics on Education
     Herbert S. Conrad, U. S. Office of Education

The Central Register as a Device for Producing Better Statistics as the Basis for Understanding and Treating Juvenile Delinquency
     Sophia M. Robison, New York School of Social Work

The National Prisoner Statistics Program
     Henry Coe Lanpher and James C. McCafferty, Bureau of Prisons, Department of Justice

Discussion   Francis G. Cornell, University of Illinois
Edward E. Schwartz, U. S. Children's Bureau

9:30-11:30 A. M.   **Public Health Statistics: Approaches to the Definition of Public Health Problems**

Joining Organization: Statistics Section, American Public Health Association

Chairman: Paul M. Denson, University of Pittsburgh

Papers   The Significance of the Family as a Unit of Study in the Definition of Public Health Problems
     Margaret Merrell, Johns Hopkins University

The Problem of Defining a Medical Service Area
     Isidore Altman, U. S. Public Health Service

9:30-11:30 A. M.   **Problems of Identifiability**

Joining Organizations: Institute of Mathematical Statistics, Econometric Society

Chairman: Paul Samuelson, Massachusetts Institute of Technology

Papers   Identifiability and Consistent Estimability of Structural Relations
     J. Neyman, Statistical Laboratory, University of California, Berkeley

Systems of Non-Linear Stochastic Difference Equations
     Herman Rubin, Stanford University

Discussion   Leonid Hurwicz, University of Illinois
C. M. Stein, University of Chicago

12:00 NOON   Meeting of the Outgoing Board of Directors

Luncheon	
12:00 NOON–	**Investing in Common Stocks**
3:20 P. M.	*Business and Economic Statistics Section*
Luncheon	*Joining organization:* Boston Security Analysts Society
	Chairman: Robert J. Wilkes, Scudder, Stevens & Clark
Papers	The Principles of Formula Investing

Robert A. Warren, Keystones Custodian Funds, Inc.

Common Stocks and Life Insurance Companies
   Sherwin C. Bagger, New England Mutual Life Insurance Company

1:20–3:20 P. M.   **Experimental Design in Industry**

Committee on Statistics in the Physical Sciences

Joining organization: New England Region, American Society for Quality Control

Chairman: Dorian Shainin, United Aircraft Corp.

Papers   An Industrial Experiment in Paper Saturation
   Warren Purcell, Brown Company
Use of Statistical Principles in Factory Trouble Shooting
   Leonard A. Seder, Gillette Safety Razor

Discussion   Louis G. Young, Bolton, Massachusetts
John G. Rutherford, The Glen L. Martin Company
John Riorden, Department of the Air Force

1:20–3:20 P. M.   **Migration**

Committee on Statistics in the Social Sciences

Joining Organization: Population Association of America

Chairman: Warren S. Thompson, Miami University, Oxford, Ohio

Papers   Intrastate Migration in Washington, 1935-40
   Calvin F. Schmid and M. J. Griswold, University of Washington
Intrastate Migration in Tennessee Valley Area, 1935-40
   John K. Folger, University of North Carolina
Intrastate Migration in New England 1935-40
   N. L. Whetten and R. G. Burnight, University of Connecticut, Storrs

1:20–3:20 P. M.   **Statistical Problems in Animal Experimentation**

Biometrics Section

Joining organization: Eastern North American Region, The Biometric Society

Chairman: Earl L. Green, Ohio State University

Papers   Some Statistical Aspects of Research Using Radioactive Isotopes and X-rays
   A. E. Brandt, Atomic Energy Commission
An Application of Factor Analysis to the Systematics of the Genus Kalotermes
   C. P. Stroud, University of Chicago
Bio-Assay with the Latin Square—the Choice of an Error Term
   Jerome Cornfield, National Cancer Institute

1:20–3:20 P. M.   **Current Statistical Problems in Agriculture**

Business and Economic Statistics Section

Joining organization: American Farm Economic Association

Chairman: F. F. Hill, Cornell University

Papers   Measuring the Shifting Structure of American Agriculture
   Orris V. Wells, Bureau of Agricultural Economics
A Critical Evaluation of Available Agricultural Statistics
   Irvin M. Lee, Giannini Foundation of Agricultural Economics

Discussion   O. C. Stine, 20th Century Fund

3:30-5:30 P. M.	**Price-Wage Measures and Controls**
	Business and Economic Statistics Section
	Chairman: Henry B. Arthur, Swift & Company
Papers	Statistics in Price Control Gardner Ackley, Office of Price Stabilization Wage-Price Relationships George Cline Smith, Chamber of Commerce of the U. S.
Discussion	George W. Brooks, International Brotherhood of Pulp, Sulphite and Paper Mill Workers
3:30-5:30 P. M.	**Population Projections for the Decade Ahead**
	Business and Economic Statistics Section
	Chairman: Francis E. McIntyre, California Texas Oil Co. Ltd.
Papers	Projecting Population for Sales Forecasting Margaret J. Hagood, U. S. Bureau of Agricultural Economics, and Jacob S. Siegel, U. S. Bureau of the Census The Role of Population in Economic Dynamics Charles F. Roos, Econometric Institute
Discussion	Richard M. Snyder, E. I. du Pont de Nemours and Company John E. Hodges, Hughes Tool Company and Rice Institute
3:30-5:30 P. M.	**Progress Report—Recent Changes in Statistics Courses and Curricula**
	Section on the Training of Statisticians
	Chairman: J. E. Morton, A. S. A. Survey of Statistical Program of the Bureau of Mines
Papers	Developments in Eastern Universities Philip J. McCarthy, Cornell University Developments in Mid-American Universities Palmer O. Johnson, University of Minnesota Developments in Western Universities William A. Spurr, Stanford University
Discussion	Rutledge Vining, University of Virginia S. S. Wilks, Princeton University P. G. Fox, University of Wisconsin
3:30-5:30 P. M.	**The Evaluation of Diagnostic Procedures**
	Biometrics Section
	Joining organization: Eastern North American Region, The Biometric Society
	Chairman: John W. Fertig, Columbia University
Papers	Diagnosis in Tuberculosis J. Yerushalmy, University of California, Berkeley Diagnosis in Cancer John E. Dunn, National Cancer Institute Diagnosis in Diabetes Hugh T. C. Wilkerson, U. S. Public Health Service
Discussion	Paul Meier, Philadelphia Tuberculosis Association E. Cuyler Hammond, American Cancer Society William F. Taylor, U. S. A. F. School of Aviation in Medicine, Randolph Field

7:00 P. M.	**Presidential Address**
Dinner	Lowell J. Reed, President, American Statistical Association
	Business Meeting: The American Statistical Association

FRIDAY—DECEMBER 28, 1951

8:30-9:20 A. M.	**Business Meeting:** Biometrics Section
	Chairman: John W. Tukey, Princeton University
	Business Meeting: Business and Economic Statistics Section
	Chairman: Walter E. Hoadley, Jr., Armstrong Cork Company

9:30-11:30 A. M.   **Defense Production Statistics**

Business and Economic Statistics Section

Chairman: George Terborgh, Machinery and Allied Products Institute

Papers   Capacity Requirements Under Partial Mobilization
Glenn McLaughlin, Defense Production Administration

Problems of Measurement in Allocation of Scarce Resources
Frederick Cone, Office of Defense Mobilization

9:30-11:30 A. M.   **Statistical Evaluation of Clinical Data**

Biometrics Section

Joining organizations: Eastern North American Region, The Biometric Society; Vital Statistics Section, American Public Health Association

Chairman: Jane Worcester, Harvard University

Papers   Estimate of Effectiveness of Cancer Therapy from Mortality Records
Joseph Berkson, Mayo Clinic

Do Persons Lost to Long-Term Observation Have the Same Experience as Persons Observed?
Theodore J. Bauer, James F. Donohue, Vincent Larson, Albert P. Iskrant, Quentin R. Remein, U. S. Public Health Service

The Estimation of Rates from Clinical Data
Jerome Cornfield, National Cancer Institute

Discussion   Sidney Cutler, National Cancer Institute

9:30-11:30 A. M.   **Statistical Developments in Business Finance**

Business and Economic Statistics Section

Chairman: John Lintner, Harvard Graduate School of Business Administration

Papers   A Critical Evaluation of Recent Additions to and Needs for Financial Statistics Covering Business Operations from the Viewpoint of the Government Economist
Lawrence McHugh, U. S. Department of Commerce

A Security Analyst Appraises Financial Statistics
Lucien O. Hooper, W. E. Hutton and Company, New York

Discussion   Miller Upton, Washington University, St. Louis, Missouri
Eli Shapiro, University of Chicago

9:30-11:30 A. M.   **Application of Statistics in Rural Sociology**

Committee on Statistics in the Social Sciences

Joining organization: Rural Sociological Society

Chairman: Margaret Jarman Hagood, Bureau of Agricultural Economics, U. S. Department of Agriculture

Papers   A Note on the Potential Error in the Survival Rate Method of Estimating Net Migration
Jacob S. Siegel, Bureau of the Census, and C. Horace Hamilton, North Carolina State College of Agriculture

Housing Facilities and Equipment of Hired Farm Workers and Their Employers
Barbara B. Reagan, Bureau of Human Nutrition & Home Economics, and Louis J. Ducoff, Bureau of Agricultural Economics, U. S. Department of Agriculture

Problems in Quantitative Analysis of the Effect of Training Practices on the Personal Adjustments of Rural Children
William H. Sewell, University of Wisconsin

Discussion   John D. Black, Harvard University

9:30-11:30 A. M.   **Vital Statistics: International Statistical Needs in the Study of. Man**

Committee on Statistics in the Social Sciences

Joining organization: Eastern North American Region, The Biometric Society

Chairman: Paul M. Densen, University of Pittsburgh

Papers   International Needs for Health Statistics
Knud Stowman, U. S. Public Health Service

Evolving Mechanisms for the Production of International Health Statistics
Halbert L. Dunn, National Office of Vital Statistics, U. S. Public Health Service

Training Problems in the Development of International Statistics
Forrest Linder, United Nations, New York

Discussion   Paul M. Densen, University of Pittsburgh
Harry Alpert, Division of Statistical Standards, Bureau of the Budget

9:30–11:30 A. M.	**The Implication of Sampling Methods to Business and Industrial Statistics**
	Committee on Statistics in the Social Sciences
	Chairman: Howard C. Grieves, Bureau of the Census
Papers	Sampling Techniques in the Current Business Program Max Bershad, Bureau of the Census Measurement of Coverage in the 1948 Census of Business Leon Pritzker, Bureau of the Census The Annual Survey of Manufacturers' Sample Jack Ogus, Bureau of the Census
Discussion	Robert W. Burgess, Western Electric Company Howard L. Jones, Illinois Bell Telephone Co.
12:00 NOON	**Business Meeting:** Section on the Training of Statisticians
Luncheon	*Chairman:* Rutledge Vining, University of Virginia
12 NOON–	**The Business Outlook**
3:20 P.M.	*Business and Economic Statistics Section*
Luncheon	*Chairman:* Sumner H. Slichter, Harvard Graduate School of Business Administration Garfield Cox, University of Chicago Murray Shields, Bank of the Manhattan Company **Discussion from the floor**
1:20–3:20 P. M.	**Statistical Aspects of Engineering Measurements**
	Committee on Statistics in the Physical Sciences
	Chairman: William R. Pabst, Jr., Department of the Navy
Papers	On Intervals of the Form, $\bar{x} \pm k.s.$ Frank Proschan, National Bureau of Standards The Use of Reference Standards John W. Tukey, Princeton University
Discussion	Charles A. Bicking, Department of the Army Irving W. Burr, Purdue University
1:20–3:20 P. M.	**The Application of Statistics in Appraising the Effectiveness of the Income-Maintenance Programs**
	Committee on Statistics in the Social Sciences
	Joining organization: Social Work Research Group
	Chairman: Anne E. Geddes, Social Security Administration
Papers	The Nature and Extent of Our Knowledge Concerning the Effectiveness of the Programs Jacob Fisher, Social Security Administration The Gaps in Our Knowledge: Resources and Approaches for Filling Them John McCaslin, Department of Economic Security, State of Kentucky Potentialities of the Newer Statistical Techniques for Providing Evaluative Data Needed to Close the Gaps (Speaker to be announced)
1:20–3:20 P.M.	**Sampling in the 1950 Census**
	Joining organization: Institute of Mathematical Statistics
	Chairman: Morris H. Hansen, Bureau of the Census

Papers	Sampling in the 1950 Census of Population and Housing
	Joseph Steinberg and Joseph Waksberg, Bureau of the Census
	    I. The basic population and housing samples
	    II. The sample for preliminary tabulations
	       (with Albert Mindlin)
	    III. Sampling inspection of clerical processing
	       (with Thomas Jabine)
	    IV. The survey of residential financing
	       (with Nathan Lieder)
	    V. Measurement of biases and variances
	       (with Herman Hess)
	Sampling in the 1950 Census of Agriculture
	Harold Nisselson and Floyd Berger, Bureau of the Census

Discussion	Frederick F. Stephan, Princeton University Earl E. Houseman, Bureau of Agricultural Economics, U. S. Department of Agriculture

1:20-3:20 P.M. **A Desirable Training Program from the Point of View of the Present-Day Employer of Statisticians**

Section on the Training of Statisticians

Chairman: Charles A. Glover, American Telephone & Telegraph Company

Speakers Wroe Alderson, Alderson and Sessions
William C. Flaherty, Chrysler Corporation
Harold Gullikson, Educational Testing Service
Paul S. Olmstead, Bell Telephone Laboratories
Benjamin J. Tepping, U. S. Bureau of the Census

Discussion Lester S. Frankel, Alfred Politz Research, Inc.
William G. Madow, University of Illinois
Samuel S. Wilks, Princeton University

2:30 P. M. **General Factors in Economic Growth in the United States**

Business and Economic Statistics Section

Joining organization: American Economic Association

Chairman: Arthur F. Burns, Columbia University and National Bureau of Economic Research

Papers Relation of Capital Formation to National Product
Simon Kuznets, University of Pennsylvania and National Bureau of Economic Research
Secular Change in Income Distribution
Geoffrey H. Moore, National Bureau of Economic Research
The Role of Productivity in Economic Growth
Frederick C. Mills, Columbia University and National Bureau of Economic Research

Discussion James S. Dusenberry, Harvard University
Frank R. Garfield, Board of Governors of the Federal Reserve System
Raymond W. Goldsmith, Washington, D. C.

3:30-5:30 P. M. **Monetary and Credit Statistics**

Business and Economic Statistics Section

Chairman: Carl E. Parry, Washington, D. C.

Papers Facts Needed for Monetary Policy Formation in the United States
Roland I. Robinson, Northwestern University
Facts Needed for Monetary Policy Formation in Other Countries
Earl Hicks, International Monetary Fund

Discussion Richard Youngdahl, Board of Governors, Federal Reserve System
Henry C. Wallich, Yale University

3:30-5:30 P. M. **Intra-Company Statistical Programs**

Business and Economic Statistics Section

Chairman: Robert W. Burgess, Western Electric Company

Papers Analysis and Forecasts of Company Sales
Edmund R. King, Eastman Kodak Company
Inventory Control in Department Stores
Q. Forrest Walker, R. H. Macy and Company
Mortgage Experience Studies
Eleanor S. Bagley, Mutual Life Insurance Company of New York
Intra-Company Statistics in the Standard Oil Company of New Jersey
C. Ashley Wright, Standard Oil Company of New Jersey

3:30-5:30 P. M. **Round table discussion by members of the Committee on the Mathematical Training of Social Scientists**

Joining organization: Institute of Mathematical Statistics

Chairman: W. G. Madow, University of Illinois

3:30-5:30 P. M.	**Census Statistics**
	Committee on Statistics in the Social Sciences
	Joining organization: Population Association of America
	Chairman: Roy V. Peel, Bureau of the Census
Papers	International Coordination of Latin American Censuses
	Calvert L. Dedrick, Coordinator of International Statistics, Bureau of the Census
	Canada's 1951 Census
	O. A. Lemieux, Dominion Bureau of Statistics, Canada
	Census Research in Data Collection Techniques
	Lowell T. Galt, Bureau of the Census
Discussion	Donald Riley, Division of Statistical Standards, Bureau of the Budget
	Forrest Linder, Statistical Office, United Nations

| 8:00 P. M. | **Concert, Boston Pops Orchestra, Arthur Fiedler conducting, Ballroom, Hotel Statler** |

SATURDAY—DECEMBER 29, 1951

8:00-9:30 A.M. Breakfast	**Chapter and District Representatives Meeting**
9:30-11:30 A. M.	**Discrete Random Processes and Actuarial Theory**
	Biometrics Section
	Joining organizations: Society of Actuaries; Institute of Mathematical Statistics; Eastern North American Region of the Biometric Society; American Association of University Teachers of Insurance
	Chairman: Mortimer Spiegelman, Metropolitan Life Insurance Company
Papers	Probability Theory of Decrements from a Population
	H. L. Seal, Morss and Seal
Discussion	T. N. E. Greville, National Office of Vital Statistics, U. S. Public Health Service
	John E. Walsh, Bureau of the Census
	H. W. Alexander, Adrian College, Michigan
9:30-11:30 A. M.	**Index Number Developments**
	Business and Economic Statistics Section
	Chairman: Geoffrey Moore, National Bureau of Economic Research
Papers	Progress in the Revision of the Federal Reserve Index of Industrial Production
	Lorman C. Trueblood and Arthur Broida, Board of Governors of the Federal Reserve System
	Measuring Errors in Construction and Use of Price Indexes
	Speaker from the Bureau of Labor Statistics
Discussion	Francis E. McIntyre, California Texas Oil Company, Ltd.
9:30-11:30 A. M.	**Measurement of Construction Activity under Government Restrictions**
	Business and Economic Statistics Section
	Chairman: Walter E. Hoadley, Jr., Armstrong Cork Company
Papers	New Developments in Government Construction Statistics
	E. Everett Ashley, 3rd, U. S. Housing and Home Finance Agency
	The 1952 Construction Outlook
	Clyde Shute, F. W. Dodge Corporation
Discussion	P. H. Raley, American Radiator and Standard Sanitary Corp.
	H. E. Riley, U. S. Bureau of Labor Statistics
9:30-11:30 A. M.	**Statistical Quality Control**
	Committee on Statistics in the Physical Sciences
	Chairman: Ellis R. Ott, Rutgers University
Papers	Statistical Training in Industry
	Paul C. Clifford, State Teachers College, Montclair, New Jersey
	Applications in Process Control
	Martin A. Brumbaugh, Bristol Laboratories
Discussion	David H. Schwartz, Department of the Army
	John Riordon, Air Materiel Command, Wright Patterson Field
	Eugene H. MacNiece, Johnson & Johnson

9:30–11:30 A. M.	**Round Table: How Can Statistical Research Methods Be Used in Evaluating Counseling Services?**

Committee on Statistics in the Social Sciences

Joining organization: Social Work Research Group

Moderator: Edward Schwartz, U. S. Children's Bureau

Participants

Leonard S. Kogan, Institute of Welfare Research, Community Service Society of New York

Eli S. Marks, Bureau of the Census

12:00–5:00 P. M. — **Census Tract Conference**

Luncheon — *Presiding:* Howard Whipple Green, Cleveland Health Council

Papers

Greetings from the Bureau of the Census
Roy V. Peel, Director of the Census

Publication Schedule for the Seventeenth Decennial Census
Conrad Taeuber, Bureau of the Census

The Canadian Tract Program
O. A. Lemieux, Dominion Bureau of Statistics, Canada

Round Table — Putting Census Tracts to Work

Discussion

By City Planners—Harlin G. Loomer, Philadelphia City Planning Commission
By Housing Agencies—Frank A. Mucha, Federal Housing Administration
By Vital Statisticians—Rachel M. Jenss, Erie County Health Department, New York
By Social Agencies—Dorothy W. Myers, United Community Service, Boston
By Retailers—Donald R. G. Cowan, University of Michigan
By Manufacturers—W. Carl Masche, Brown & Bigelow, St. Paul
By Business—Irving M. Plant, Consolidated Edison Company of New York, Inc.

12:00 NOON Luncheon — Meeting of the Incoming Board of Directors and Council of the American Statistical Association

1:20–3:20 P. M. — **Credit Regulations and Consumer Buying**

Business and Economic Statistics Section

Joining organization: American Finance Association

Chairman: Ernst Dauer, Household Finance Corporation

Papers

A Critical Evaluation of Available Consumer Credit Statistics
Duncan Holthausen, Union City, N. J.

Measuring the Impact of Consumer Credit Controls on Spending
Clark L. Fauver and Ralph A. Young, Board of Governors of the Federal Reserve System

Discussion

Thomas W. Rodgers, American Finance Conference
Wallace P. Mors, Western Reserve University
Avram Kisselgoff, Bank of New York and Fifth Avenue Bank

1:20–3:20 P. M. — **Application of Statistics in Sociology**

Committee on Statistics in the Social Sciences

Joining organization: American Sociological Society

Chairman: Frank Lorimer, American University

Papers

Use of Margin—Punched Cards in Scaling Social Data
Daniel O. Price, University of North Carolina

Purposive Sampling in a Study of Community Differences in Reactions to Atomic Energy
Charles A. Metzner, University of Michigan

Application of Statistics in Sociology
Samuel A. Stouffer, Harvard University

Discussion

Dorothy S. Thomas, University of Pennsylvania
Robert T. Bower, American University

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1:20-3:20 P. M.	**Standards of Statistical Conduct in Business and Government**

Business and Economic Statistics Section

Chairman: Martin R. Gainsbrugh, National Industrial Conference Board

Speakers

How Complete a Disclosure Do We Have a Right to Expect from Statisticians in Public Service?
    Andrew T. Court, General Motors Corporation

Statistical Standards and the Census
    Morris H. Hansen, Bureau of the Census

The Statistician and His Conscience
    Theodore H. Brown, Harvard University

Discussion

Clarence D. Long, Johns Hopkins University
J. E. Morton, A. S. A. Survey of the Statistical Program of the Bureau of Mines
W. W. K. Freeman, Mutual Boiler and Machinery Insurance Company

1:20-3:20 P. M.   **Morbidity Statistics**

Biometrics Section

Joining organizations: Eastern North American Region, The Biometric Society; Vital Statistics Section, American Public Health Association

Chairman: Robert B. Reed, Harvard University

Papers

Evaluation of Selective Service Defect Statistics
    Bernard D. Karpinos, Department of the Army

Factors Affecting Disability Claim and Termination Rates
    Barkev S. Sanders, Social Security Administration

Hospital Records as a Source of Morbidity Statistics
    Marta Fraenkel, New York City Department of Hospitals

Discussion

William M. Haenszel, Connecticut Department of Health
Clifford A. Bachrach, Johns Hopkins School of Hygiene and Public Health
Morton Robins, Veterans Administration

3:30-5:30 P. M.   **The Program for the Future Development of the Section on Training**

Section on the Training of Statisticians

Chairman: George E. Nicholson, University of North Carolina

Discussion

By members of the Committee:
    Helen M. Walker, Columbia University
    Howard L. Jones, Illinois Bell Telephone Company
    William G. Madow, University of Illinois
    A. M. Mood, The Rand Corporation
    Harry V. Roberts, The University of Chicago

3:30-5:30 P. M.   **The Use of the Range**

Biometrics Section; The Committee on Statistics in the Physical Sciences

Joining organization: Eastern North American Region, Biometric Society

Chairman: Lila Knudsen Randolph, Federal Security Agency

Papers

Applications of the Non-Central "T" Statistic Based on the Average Range
    Lincoln E. Moses and George T. Resnikoff, Stanford University

A New Viewpoint on the Efficiency of the Range in Large Samples
    Joseph Berkson, Mayo Clinic
    Frederick Mosteller, Harvard University

Processing Data for Outliers and the Effect on Estimates of Location and Scale
    W. J. Dixon, University of Oregon

Testing a Straggler Mean in a 2-Way Classification Using the Range
    Jack Moshman, Oak Ridge National Laboratory

Discussion

Joseph Daly, Bureau of the Census
William R. Pabst, Jr., Department of Defense

3:30-5:30 P. M.   **Practical Application of Industrial Statistics**

Committee on Statistics in the Physical Sciences

Chairman: Paul Olmstead, Bell Telephone Laboratories

Papers

Electrical Engineering Application
    A. V. Feigenbaum, General Electric Company

Interference Failures in Sub-assembles
    Arthur Bender, Delco-Remy Division, General Motors

Failures Relating to Measurement Reliability
    Thomas A. Budne, A. R. Squibb and Sons

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A Sampling Device

by THEODORE H. BROWN and DICKSON H. LEAVENS

There is nothing particularly new in the use of apparatus to make certain principles clear for a group of students, since, for example, the teaching of the natural sciences has used such devices for many years. It follows that since part of statistical procedures are based upon probability theory, certain concepts might be presented in the classroom through the use of corresponding devices.

The development of quality control since the last war has induced many businesses to spend very large sums of money in the construction of individual pieces of apparatus. Often the cost of these is far beyond the funds available to the individual teacher of statistics. The gadget about to be described is a simple, home-made affair which almost any teacher can either make for himself or have built at a relatively low cost. No record of the expense involved was kept, but memory indicates that the total outlay for two of these sampling devices was in the neighborhood of $5.

It is the opinion of the authors that sampling devices should possess certain definite properties. Mechanically, they should be reasonably simple, so that the student does not become uneasy from the suspicion that the apparatus is so cleverly designed that it will produce preplanned results. Second, the method of mixing items of the parent population should be absolutely and wholly beyond the control of the operator. Third, the mechanism by means of which the sample is drawn should be completely out of the control of the operator. Fourth, there should be a complete concealment of the parent population so that the student will see only the sample which has been drawn. Fifth, the apparatus should be so designed that the sample when drawn can be left visible to the class without the need for the operator to hold it in position.

In the summer of 1932 the writers designed and constructed two of the devices shown in Figure 1. These consist of a cubical wooden box (A) about 8 inches on a side and lined with baffles. On one side there is a pyramidal hopper into which a glass tube (B) is set and enclosed in a wooden frame for strength. The tube is about 6 inches long and a little more than $\frac{1}{2}$ inch in internal diameter. The box turns on trunnions which are mounted in a U-shaped wooden frame (C) and turned by a crank (D). This U-shaped frame itself is hinged at E to a block (F) which in turn is fastened to the base (G). In the position

shown, the tube end of the box is elevated, but the hinge is so located on the bottom of the U-shaped frame that the mixer is in a stable position with the tube pointed either upward or downward. Internally, at the point where the tube enters the box, there has to be a flat surface with a sharp edge at the tube entrance. Otherwise, with a funnel-shaped approach, the beads in the box will jam when there is an attempt to draw a sample in the tube.

The beads which are used as a parent population may be easily obtained at slight expense from one of the kindergarten suppliers. They are a standard half-inch bead and are available in at least five different colors.

In operation this design of the apparatus enables, first, a quick, though noisy, mixing of the beads by turning the crank with the tube end in a horizontal or upward position so that no sample is drawn during the mixing. After mixing, the tube end is depressed, allowing a sample to be drawn.

It is recognized that the parent population is finite and that the process of drawing ten beads at a time is not strictly the same as that of drawing one at a time and replacing it after each drawing. The error, however, is not large if the box is loaded with several hundred beads. Moreover, the class interest is retained by the swifter action of using ten beads at a time.

The apparatus may be used either to illustrate the sampling of attributes or the sampling of variables. In the case of a simple dichotomy of attributes, the box may be loaded with several hundred beads of two colors. Since the glass tube is long enough to take a sample of ten a series of samples of this size can quickly build up a proportion between colors which possesses a smaller and smaller sampling error. There follows, consequently, the question for the class to answer of what is in the box. The question may be asked in this indefinite fashion because all that the class will know from the data so far available is that they are seeing two colors and that the proportion between these two colors in the samples as drawn is known. From these, some estimate of the proportions in the box only can be inferred. In order to obtain an estimate of the actual numbers of the two colors in the box, some additional fact, such as the number of the total parent population, must be added. If this number is only an estimate, the class
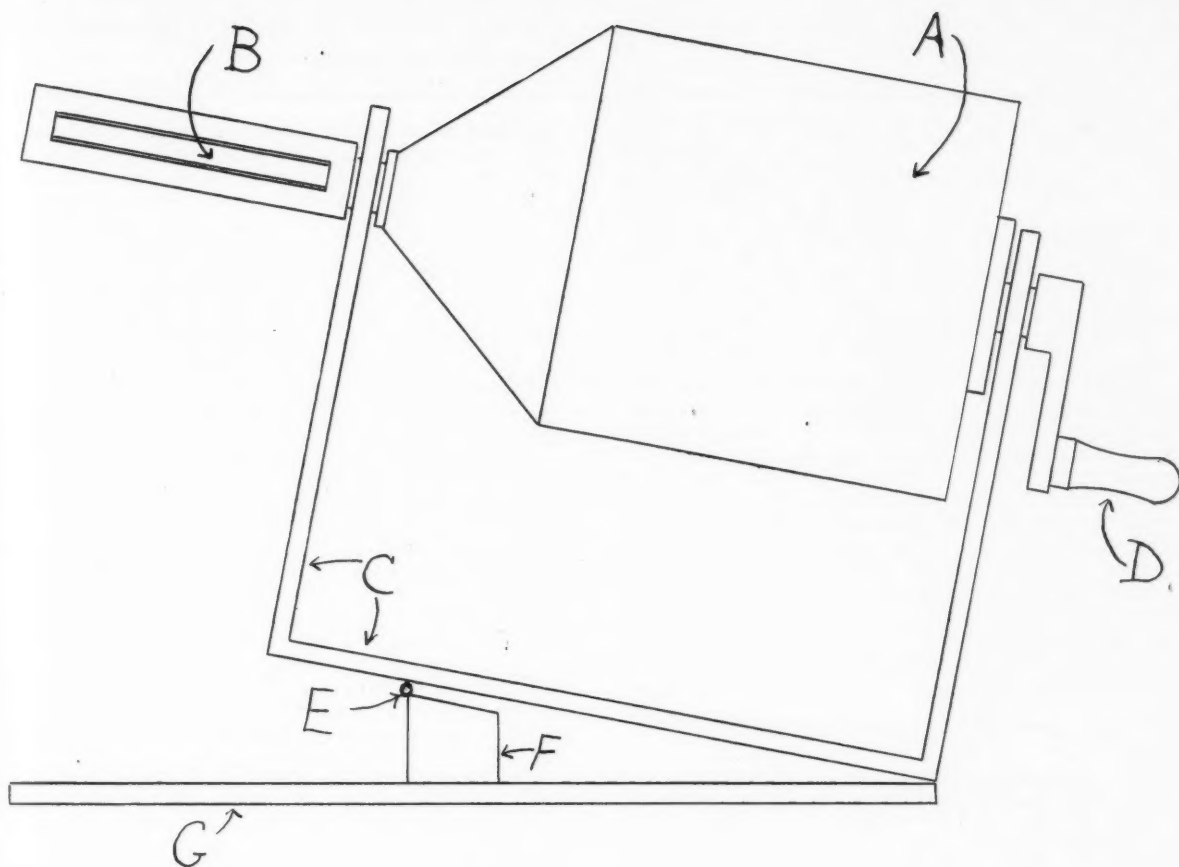
thus realizes quickly the inaccuracy of projections from a sample to a parent population. When the class becomes thoroughly satisfied that it knows all the details about the material in the box, the box may be opened and a smaller plastic box containing beads of smaller sizes and different colors from those extracted in the tube sample may be withdrawn. This brings home pretty emphatically the fact that a sample, in order to be representative of an entire population, must include in its design a contact with all parts of that population.

For a demonstration of the sampling of variables, five different colors of beads have been used. These have usually been coded with the numerical value 1, 2, 3, 4, and 5. The classification, although rough, gives a reasonable indication of the outline of the frequency distribution basic to one or another of the problems in the sampling of variable.

In particular, the distribution of t-values has often been empirically developed. This can be done by loading the box with the different coded colors roughly approximating their relative in numbers. A known

symmetrical distribution of the parent population which is not too far from normal and one for which the standard distribution has a unit value is easy to use. From this a whole series of samples can be drawn and the t-value calculated for each sample drawn from this known population. The record for 90 samples of 10 beads each is computed outside of the classroom, so that the class needs only to add 10 more samples and compute values of t. A very rough distribution of the t-distribution for samples of 10 results. It has been found that classes are usually satisfied with the underlying concepts. They are ready to accept the mathematically computed tables for t. Not infrequently their comment has been "This looks all right; let's go on to some real problems for which we can use the mathematically computed table of the t-distribution."

From the teacher's point of view, the situation is of more than passing interest because the nonmathematical student loses his resentment toward the mathematician. He has caught some inkling, not of how this particular table is computed mathematically, but of what the end result is to be.

Revision of Base Period for General-Purpose Indexes

Stuart A. Rice
Assistant Director for Statistical Standards
Bureau of the Budget

A shift in the base period for general-purpose index numbers to the years 1947-49 has been recommended to Federal statistical agencies by the Division of Statistical Standards in the Bureau of the Budget. Agencies have been asked to adopt the new base period by January 1, 1953, or earlier if the work of revision permits. Recommendation of the shift to a postwar series of years was made after prolonged consideration with the producers and users of the indexes of the advantages and disadvantages of making a change in the base period at this time.

In 1940 the Central Statistical Board (predecessor to the Division of Statistical Standards) recommended adoption of the years 1935-39 as the base period for the Government's general-purpose index numbers. The Board at that time recommended re-examination of the question of base periods before the end of another decade, and consideration of a shift to a more recent series of years. In the present recommendation of a shift to 1947-49 as the base period, the Division of Statistical Standards again suggests that provision be made for re-examination of the base periods after another decade or so.

Following is the text of the statement sent to Federal statistical agencies on the recommended change:

Recommended Postwar Base Period for Index Numbers

The principal general-purpose index numbers currently published by Federal agencies are computed on a pre-World War II base. A majority are based either on a 1935-39 period or the single year 1939. A few are based on periods in the 1920's or even earlier. There is general agreement among the Federal statistical agencies and users of statistical data that, in so far as possible, governmental indexes should have a uniform base period.

Because a number of these basic indexes are currently in the process of extensive revision to incorporate data on new products or processes, the present time seemed to be an appropriate one to consider the desirability of a shift to a post-World War II base period. Reexamination of base periods of index numbers at this time also follows a recommendation of the Central Statistical Board in 1940 that "the question of base periods be reexamined before the end of another decade and that consideration then be given to shifting the standard base period forward to a more recent series of years." Accordingly, the Division of Statistical Standards of the Bureau of the Budget asked an interagency committee to consider this question, as was done in a similar case about ten years ago when adoption of 1935-39 as the base for all general-purpose index numbers was under consideration.

Discussion with representatives of the several Federal agencies brought out a number of reasons for a shift of the index base to a postwar period: (1) The

rapid expansion and dramatic changes in our economy make base periods dating back a decade or so unsuitable for many current comparisons, particularly those with the period immediately "before Korea." (2) Some of the major indexes that are currently being revised must be placed on a postwar base because it will be virtually impossible to obtain back data to permit the component series to be computed on a prewar base. Both the index of wholesale prices prepared by the Bureau of Labor Statistics and the index of industrial production prepared by the Federal Reserve Board will have to be put on a postwar base for this reason. (3) Other indexes that are now published on a prewar base will be more meaningful if they are placed on the same postwar base as these basic price and production indexes. (4) cost of making the transition to a postwar base often will be less, and confusion for index users will be reduced, if base-period changes are made at the same time that new data and revised weights are introduced in the construction of the indexes.

Among the disadvantages of making the shift at this time are the following: (1) Initial inconvenience may be involved for some users of the data. Many analysts have become familiar with the economic conditions represented by present base periods, and, at least for a time, any shifts in base period may introduce complications in analytical uses of the data. (2) For some purposes it is still desirable to compare the current situation with that immediately preceding World War II. (3) Certain of the indexes now serve as the basis for private contracts or governmental administration, and a change in the base period would necessitate adjustment of the technical details of these arrangements. (4) For some indexes, particularly the price series, adoption of a postwar base period would mean taking a period of abnormal conditions as the new base. In fact, for some series there is no postwar year or period that represents a "normal" period.

Although these disadvantages are real, to a considerable extent they inhere in any change of base period. For the most part they do not apply specifically to a change at this time, but would be encountered in any eventual change from the pre-World War II level.

After extensive consultation with producers and users of the indexes, both within and outside the Government, the Division of Statistical Standards concluded that for some of the indexes a postwar base period is necessary for technical reasons, and that the advantages of a uniform postwar base appear to outweigh the temporary disadvantages of the shift. The following recommendations are therefore made to the Federal statistical agencies:

1. The period 1947-49 should be made the base for index numbers of the several Federal statistical agencies.

2. This period should be adopted by June 30, 1952, unless special circumstances interfere. [Agencies are asked to adopt the new base period by January 1, 1953, or earlier if the work of revision permits.]

3. Conversion of each index to the new base should be carried back to the beginning of the index, if possible.

4. The weights used to compute the recent segments of each index should be within the 1947-49 base period, unless this is precluded by lack of data.

5. In accordance with an earlier recommendation on good practice for the publication of statistical data (*Standards for the Publication of Statistical Data,* Division of Statistical Standards, Bureau of the Budget, June 16, 1947), a full explanation of the techniques employed in making such revisions should be prepared for public distribution.

To facilitate general understanding of the index numbers on the new base, the statistical agencies should accompany the first release of each index series with a nontechnical explanation of the change of base. They should also prepare a detailed explanation for the use of technicians who inquire about it. For those index numbers that serve as the basis of private contracts or governmental programs, the indexes should be available, when feasible, on both the old and new base for a sufficient length of time to enable those affected to make adjustments to the new base.

Although too frequent changes in base periods are not desirable, good statistical practice requires reexamination of base periods from time to time. Statistical agencies should make provision in their statistical procedures for such reexamination and adoption of new base periods every decade or so.

Report of the Committee on Committees
For the Year 1950

The Committee on Committees makes the following recommendations to the Board of Directors on matters referred to the Committee by the Board or its officers during the year 1950.

1. *Associated versus Affiliated Societies.*

The Committee recommends that the American Statistical Association endeavor to persuade other organizations with similar interests to become associated rather than affiliated societies. The principal differences between the two forms of association with the American Statistical Association, under the terms of the constitution, are that association brings with it representation on the Committee on Publications and two members on the Council of the Association rather than one. The Committee would further recommend that the associated societies be represented on the Program Committee, although this is not provided for in the Constitution.

The Committee's reasons for this recommendation are as follows:

(A) Any association whose work is so closely related to that of the American Statistical Association would undoubtedly wish to cooperate actively. In professional organizations of the type which this association represents, the principal services which are provided to the members are in connection with publications and the annual meetings. Therefore, it seems that if the relationship is to be valuable, it should be relatively close. Members of the Committee on Committees who were members of the Committee on the Constitution at the time when it was drafted indicate that the category of affiliation was provided for only in cases where other associations might desire a quite loose form of affiliation.

It is the opinion of the Committee on Committees that the Association should endeavor to interest other societies, both in the physical sciences and the social sciences *in which statistical methodology is of considerable importance.* Thus, the Committee suggests that efforts be made by the Board of Directors to interest the Institute of Mathematical Statistics, the Psychometric Society, and the American Society for Quality Control. The Eastern North American Region of the Biometrics Society presents a special case.

2. *Establishment of Committees on Proposed New Sections.* It is recommended that two new ad hoc committees be appointed, one on the social sciences and one on the physical sciences, to explore the possibilities, either of securing association with principal societies in these two fields or of setting-up Section Committees within the Association. These two special ad hoc committees are requested to submit a report to the Committee on Committees, preferably by September 1951, in time for consideration at the Autumn meeting of the Board of Directors with reference to their findings as to the desirability of setting-up such sections and with a proposal for the delimitation of the fields to be covered by such sections, if they are recommended.

The Committee had before it Dr. Hauser's memorandum on the possibility of establishing a Section in the social sciences, relating in particular to the fields of sociology, population, and social work. The Committee believes that such a section is worth exploring, although the name is too inclusive, in view of the section on Economics & Business, but that careful consideration needs to be given to the other fields, before a final decision is taken, or a general announcement is made concerning proposed section. It is important that tentative decisions on boundaries of interest be made in advance. The Committee also had before it Dr. Deming's memorandum on a Section in the physical sciences. It is of the opinion that the scope of any section on the physical sciences should be more limited than that broadly discussed by Dr. Deming. Thus, for example, the Committee would feel that the section should concentrate on societies related to clear-cut fields of subject matter in the physical sciences—for example, chemistry, physics, engineering, and astronomy—rather than those dealing primarily with methodology. Thus, for example, the committee would be of the opinion that the quality control groups and the accountants should not be included within a section on the Physical Sciences. Such organizations should more appropriately be asked to become associated societies. Dr. Shewhart has been asked to prepare a memorandum on the possible scope of such a section committee in the physical sciences for the guidance of the ad hoc committee in the event that it is established by the Board.

3. *Committee on Public Relations.*

It is recommended that a permanent standing committee on public relations be established by the Association with rotating members serving three-year terms, under the general rules formulated by the Committee on Committees last year and approved by the Board.

The Committee suggests that the scope of the work of the Committee on Public Relations should include the following: publicity for annual meetings, including summaries of papers to be given at the meetings; the use of various media to explain the purposes of the Association and its work; the handling of any press statements or other publicity concerning the creation of special committees, or committee reports, the activities of the Board of Directors, the officers, etc.; working out a program with local ASA groups so that adequate publicity may be given to their activities. The Committee on Committees suggests that the Committee on Public Relations, at an early meeting, should consider the scope of its work in greater detail and provide the Committee on Committees with a more detailed account of the functions which it believes should be served by such a committee. After approval by the Committee on Committees this can then become the charter of the Committee on Public Relations.

4. *Committees to advise the Division of Statistical Standards of the Bureau of the Budget.*

It is recommended that an advisory committee to the Division of Statistical Standards of the Bureau of the Budget be established by the Association as requested by Dr. Stuart Rice in his recent letter to President Wilks. The membership of this standing committee is to be appointed by the President of the Association in the manner in which all standing committees are appointed, but from a panel of Past-Presidents, the President and President Elect, of the American Statistical Association, in such a way as to assure a balance between various groups in the Association having special interests in government statistics. The members of this committee are to serve for terms of three years, rotating with the usual rotation. It is suggested that six to nine members would be desirable.

The function of this committee is to consider broad policy questions concerning the statistical programs of the Federal Government, on an agenda containing items submitted by the Division of Statistical Standards of the Bureau of the Budget as well as any which the Committee wishes to propose. It is not intended that this committee shall act as a technical committee to review individual forms, schedules, or procedures. Where such detailed technical review is desired it should be provided through other special committees set up by the Association to advise on a particular subject, or subjects, or to advise a particular agency, as already provided in the report of the Committee on Committees in 1949. The broad policy questions to be considered by this committee can be illustrated by the problems which now confront the Federal Government, e.g., the degree to which statistical reports, primarily for informational purposes, should be made mandatory, the scope and nature of programs for statistical information in connection with the national emergency, etc.

The Committee considered, at length, Dr. Rice's recommendation that all Past-Presidents be invited to serve on the committee and that its members, in effect, be self-selected from that group on the basis of able and willing men to serve. The Committee concluded that self-selection would be undesirable since it might give an unbalanced membership in such fashion that the committee would not have the degree of public sanction desired by the Association. It is preferable that the President make the selection.

5. *Funds for Work of the Sections.*

The Committee on Committees suggests to the Board of Directors that it explore with the Ford Foundation or some other foundation the possibility of providing funds for substantive work by the sections of this Association, particularly for publications of a specified character which would serve the uses of the sections. The Committee had in mind particularly the possibility of a group to work up teaching materials which might be assembled by the Section on the Training of Statisticians and made available widely to the membership.

Report of the American Statistical Association Representative to the Accident Statistics Committee of the American Standards Association 1950

Many problems have developed in using the Z16 codes to compile industrial injuries statistics. These have centered largely around the reportability of certain types of injuries and have resulted in difficulties in accident analysis. There are certain limitations of the Z16.2 code "American Recommended Practice for Compiling Industrial Accident Causes" as presently constituted. They make it difficult for those using the code in compiling injury statistics to supply information requested by safety engineers and others engaged in accident prevention activities.

Because of the importance of these problems the chairman of the Z16 Committee appointed four subcommittees to develop recommendations which would assist in revising the codes so they would be better adapted to the various needs. A great many differences

of opinion have arisen as to what revisions should be made and the problems are to be taken up with the committee as a whole.

It is belived that more experience with the Z16.2 code in practical use is needed before acceptable recommendations for its use can be made.

I have submitted to the Chairman and to members of the Committee an outline of modifications introduced in California in the Z16.2 code which we believe will improve its usefulness in compiling work injury statistics. These modifications have been made within the framework of the present code so as to preserve comparability with statistics compiled on the basis of the original code.

One of the primary purposes of the modifications suggested is to yield greater detail for some accident factors than is possible with the present Z16.2 code. I have suggested a 2-digit code for accident type, and classification in 56 categories in place of 11 under the

original 1-digit classification. Not only does this permit a greater amount of detail but also facilitates quicker compilation of this more detailed data when required.

Rather significant modifications in the "Agency" section of the code have been suggested to reflect more adequately agencies characteristic of certain industries, to eliminate duplications in various sections which have made it difficult to code certain agencies, to permit the development of useful supplementary information and to facilitate coding and tabulation. The sections of the "Agency" classification which are most affected by these modifications are Machines, hoisting apparatus, vehicles, hand tools, and chemicals. Additional agencies were recommended, some on an experimental basis, to permit coding of certain types of injuries not adequately provided for in the present code.

A number of modifications were suggested in the "Agency Part" section of the code to develop information not possible under the present arrangement. Where agencies do not have an "Agency Part" suggestions were made for utilizing the coding space to develop information supplemental to the other accident factors.

Changes were also suggested in the "Unsafe Act" section of the code. We have agreed to use this modified code in the compilation of industrial injury statistics for California as a pilot study to test the adequacy of the modifications and to determine what additional revisions should be made.

I am confident that this will represent a valuable contribution to the work of the Z16 Committee. The pooling of the experience of the members of the Committee will ultimately result in significant improvements in the field of work injury statistics.

M. I. GERSHENSON

LETTERS

The GNP price index registers considerably more inflation since before the war than does the consumers' price index, but less than the wholesale price index. Even the price index for personal consumption expenditures shows a greater rise since 1935-39 than does CPI, although both indexes measure the impact of inflation on the consumer.

It is hoped that the Department of Commerce will publish both deflated GNP data and the corresponding price indexes in the future on a quarterly basis, as promptly as the current dollar GNP estimates are now released. If so, both series will be invaluable to the economist, and the price indexes themselves will give us a broader measure of inflation than the CPI now does.

WILLIAM A. SPURR
Professor of Business Statistics
Stanford University

[1] Since this was written, price indexes for GNP and its major segments have been published by the Department of Commerce, but they are listed only as "implicit price deflators for gross national product", rather than as general indexes of inflation, as advocated here. *W. A. S.*

The Department of Commerce implicit price deflators for the gross national product and its major components are now published in the 1951 "National Income Supplement" to the *Survey of Current Business,* Part IV. Preceding the tables is a summary description of sources and methods employed in this preliminary deflation of the gross national product, and a discussion of the characteristics of the resulting series.

The new indexes will undoubtedly facilitate macroeconomic analysis. However, their use for purposes other than intended — that is, the segregation of the price and physical volume components of changes in the gross national product — should be made with caution. Most of the qualifications relating to use of the implicit price deflator as a "general price index" are implied in the "National Income Supplement" discussion. It might be well to restate a few of the more important points in this connection.

In the first place, the Commerce index is comprehensive only in terms of final goods and services produced in the American economy, as delimited by the gross national product concept. That is, it is not completely general, in that prices of intermediate products consumed in the production process are not directly reflected in the over-all implicit price deflator.

A second point is that the deflators are not all price indexes *per se.* Due to the particular product concepts, in some cases, and the lack of adequate price measures in others, certain expedients were adopted, particularly in the area of consumer services. These alternative methods included the use of unit cost indexes as deflators, and the use of physical volume indicators to move the constant dollar series, with the price index derived as the quotient of the current and constant dollar series. When the detailed description of the various deflators is published in the future, it will be possible to assess their relative goodness.

In the case of compensation of general government employees, an index of average earnings per employee in general government was used for deflation purposes. This segment can be deducted from the gross national product if desired, however, and use made of the deflator for the gross private product, which is published separately.

The system by which the component indexes in the implicit price deflators are weighted should also be noted by the analyst. In effect, the implicit price deflator for the gross national product is a variable weighted composite of price indexes for several hundred different product groupings. Within the individual product grouping, several price indexes may be combined on the basis of constant weights. But above this level, each expenditure segment is deflated separately, which results in an over-all implicit price index which reflects the shifting relative importance of the various product groupings.

JOHN W. KENDRICK
Acting Chief, National Economics Division
U. S. Department of Commerce
Washington, D. C.
September 20, 1951

The Faculty of Statistical, Demographic and Actuarial Sciences at the University of Rome [1]

NORA FEDERICI and FERNANDO PEDRONI

(translated by Economic Service Agency of Washington, D. C.)

The Faculty of Statistical, Demographic, and Actuarial Sciences was founded in 1936 at the University of Rome.

It has two aims: a) in the scientific field, to further the advance of the statistical, demographic, and actuarial sciences by giving its students a well-grounded background for research in these fields, and b) in the vocational field, to prepare its students for statistical and actuarial positions, either as independent professionals or as directors of statistical and insurance offices.

The Faculty of the Statistical Sciences at Rome is the only one of its type in Italy; moreover, outside of Italy, while there are numerous graduate courses in actuarial science, and other independent and complete centers of statistical studies have been established in recent years, (in the U.S.A., at the University of North Carolina; in France, at Paris; in the Soviet Union, in Bulgaria; in Argentina), there are no other Faculties or Schools whose scholastic programs fully cover statistics and actuarial science and at the same time keep the two specializations distinct.

Schools of Statistics with two-year curriculums were established in Italy in 1927 at the State universities of Rome, Padua, Florence, Bologna (then abolished), the Catholic University of Milan and recently at the State University of Palermo.

The fundamental purpose for which the Schools of Statistics were founded was that of training the Directors of the Government and Semi-Official Statistical Offices, and for imparting generally the technical culture required for the exercise of statistical activities. Their curriculum has been planned with these ends in view so as to provide an adequate preparation for the special examination that qualifies for holding positions in statistical offices, an examination that was instituted under an Act of 1923 and which must be taken by all desirous of filling such positions.

Prof. Corrado Gini, who gave the initial impetus to the founding of the Schools of Statistics, was from the very first Dean of the School at Rome. In 1936, the School of Rome was combined with the University's *School of Statistical and Actuarial Sciences*, which also had a two-year curriculum, and from that fusion rose the present Faculty of Statistical, Demographic, and Actuarial Sciences with a revised and expanded curriculum. The original Schools have been maintained by the Universities at Padua, Florence, and Milan, and a new one was afterward established at the University of Palermo. The curriculum corresponds to that of the first two years of study of the Roman Faculty.

The character of the Faculty at Rome is best shown in its curriculum, presented in detail in the attached table. It is divided into two-year courses of study. The first biennial serves both as a preparatory course for those students who plan to continue into the second, and as an end in itself, since the title to which it leads—the Diploma in Statistics—qualifies the students for management of private or governmental statistical offices.

The charter of the Faculty enables students to select, either during the biennial course for a diploma or in the following one for a degree of Doctor, some subjects that may even be other than those covered by its curriculum. This elastic organisation is in keeping with the special needs of the statistical sciences which, as they provide a method applicable to a great variety of fields, make it advisable—subject to the control and with the approval of the Dean of the Faculty so as to avoid abuses—to supplement the fundamental lessons that all must follow, by special studies suited to meet the requirements of the individual activities to which the student intends to devote himself later on.

Consideration has also been given to the need of facilitating the teaching of statistical methods to technical experts in the several branches of work in which they can be applied with advantage. For this purpose the graduate in Economic and Commercial Sciences may register with the last year of the course for a Doctor's degree in Statistical and Demographic Sciences, and likewise graduates in the Mathematical Sciences and in Mathematics and Physics may register with the last year of the course for a Doctor's degree in Statistical and Actuarial Sciences, subject to the preliminary approval of the Council of the Faculty which fixes in each case the curriculum the student is required to follow in order to present himself for a degree.

For the like reasons, students who have passed the examinations of the first two years of study for a Doctor's degree in Engineering, Mathematical Sciences, Physics, Mathematics and Physics, Natural Sciences,

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[1] "Faculty" (Italian *Facolta*) is the expression used in Europe for describing the main subdivisions of the European Universities, (but not the teaching staffs of schools or colleges). Thus, for instance, the Rome University consists of 12 Faculties and 1 School. They are the Faculties of Law; Political Sciences; Economics and Commerce; Statistical, Demographic and Actuarial Sciences; Letters and Philosophy; the Normal Faculty (*Magistero*) for training teachers of secondary schools; Medicine and Surgery; Mathematical, Physical and Natural Sciences; Pharmacy; Engineering; Mining Engineering; Architecture; School of Aeronautical Engineering.

Biological Sciences and Geological Sciences, and students who have passed the first two years of study for degrees in Law, Political Sciences, Economic and Commercial Sciences, are admitted to the first year of the biennial course for a degree of Doctor in Statistical and Demographic Sciences, provided they have been successful at the examinations in Statistics.

The examination for the Diploma may be taken by those who have passed all thirteen of the prescribed courses. It consists of the preparation and discussion of two themes, one written and one oral, one on statistical methodology and the other one some other fundamental topic in the courses studied.

The second biennial is of a higher scientific character and develops the specialized training that leads to the Degree of Doctor in Statistical and Demographic Sciences and the Degree of Doctor in Statistical and Actuarial Sciences. With these Degrees the student may: a) dedicate himself to a scientific and teaching career; b) follow the profession of independent statistician or actuary; c) direct statistical offices of private or public bodies or insurance offices. Needless to say, this Degree opens up management positions in more important statistical offices than may be entered with a mere Diploma in Statistics.

The examination for the Degree may be taken by the demography major who has passed his ten prescribed courses and the actuarial major who has passed his eleven. It consists of the preparation of four themes, one written and three oral, and discussion of at least three of them, one written and two oral. All must bear on the material in the required courses of student's major and must demonstrate a working knowledge of the methodology. One must specifically deal with the methodology of statistics, and a second must discuss, for the Statistical and Demographic Science Doctor Degree, the development of population, and for the Statistical and Actuarial Science Doctor Degree, actuarial mathematics.

The brief outline of courses given in attached table tells only part of the story.

The Faculty attempts to provide all the teaching aids necessary to give substance to the theoretical material taught in the courses. For instance, slides are presented whenever they may appropriately illustrate such subjects as, say, graphic presentation. Laboratory demonstrations of anthropometric research techniques are held for students in the anthropometry course, and the most important instruments are used—anthropometers, compasses, colorimetric scales, etc.—that the Faculty has at its disposal. Calculating and I.B.M. machines are available to the students in the statistics courses. Finally, it should be added that in the first as well as the specialized second biennial, the students do exercises consisting of practical applications of statistical methods to concrete problems.

In preparing these exercises and their examination themes, the students may use the specialized libraries associated with the Faculty Library of the Statistical Institute, Sociological Library, Library of the Actuarial Institute, Library of the Italian Committee for the Study of Population Problems, as well as the calculating machines, and the section of I.B.M. machines which serves the Faculty for its own research

work. They may also call upon the numerous assistants for individual help.

To aid the students in their preparation for the exams, the individual instructors or the Faculty have begun to publish the courses of which the following have already been published or are in process of preparation:

N. FEDERICI—*The Differential Reproduction: Extent, Causes, Consequences.* 1939.

C. GINI—*The Statistical Researches on Primitive Populations.* 1st ed., 1940; 2nd ed., 1941; 3rd ed., 1942; 4th ed., 1949. (Rome, Edizioni Universitarie). (Each new edition has been considerable enlarged over the previous one).

N. FEDERICI—*The Population Policy.* 1942.

E. CASANOVA — *Italian Contributions to Sociology.* 1942.

R. ALMAGIA—*Elements of General Economic Geography* (Giuffre, Milan, 1947).

L. CAMBONI—*Elements of Legal Statistics* (Padua, Libreria Cedam).

L. CAMBONI—*Legal Penal Statistics.*

L. CAMBONI—*Statistics of Criminality.*

L. CAMBONI—*Civil and Commercial Legal Statistics.*

A. COPPINI—*Economic and Financial Notes on Insurance Undertaking.*

R. CULTRERA—*Lessons in Actuarial Mathematics.*

B. DE MORI—*Technical Notes on Insurance against Losses.*

A. DONATI—*The Contract of Insurance in the Civil Code.*

N. FEDERICI—*Notes on Anthropometrics.*

L. GALVANI—*Mathematical Introduction to the Study of the Statistical Method* (from the Treaty of Elementary Statistics, published by Giuffre, Milan).

C. GINI—*Lessons on Biometrics.*

C. GINI—*Course of Lessons on Statistics* (Castellani, 1945-47; 2nd ed., Rome, Veschi, 1950-51).

C. GINI—*Population Theories* (Rome, Castellani, 1945).

C. GINI—*Notes on Sociology* (Rome, Edizioni Universitarie, 1949).

G. L'ELTORE—*Tuberculosis in Italy and Endemic Tuberculosis in the Post-War World.*

MAZZETTI-ORSINI-PIZZICANNELLA—*Hand-Book of Social Insurances* (Rome, Leonard).

I. MESSINA — *The Technique of Social Insurances* (Rome, I.N.P.S., 1943).

F. PEDRONI—*Notes on Graphic Presentation*—1945-46 (Rome, Castellani).

F. PEDRONI—*Construction of Graphs.*

F. PEDRONI—*Organisation of the Graph and Bibliographical Office*—1947-48 (Rome, Castellani).

G. POMPILJ—*Lessons on the Calculus of Probabilities.*

G. RONCALI—*Notes on the Application of Statistics to the Physical Sciences.*

M. SAIBANTE—*Notes on Economic Statistics.*

T. SALVEMINI—*Variability* (lessons)

F. SAVORGNAN—*Course of Lessons on Demography.*

Students who are enrolled in the Faculty and who need financial assistance may apply to the Faculty's scholarship fund, awarded annually by competitive examination. In the academic year 1947-48, 166 students registered for the biennial course for a Diploma in Statistics, 76 for the biennial course for a degree of

Doctor in Statistical and Actuarial Sciences, and 29 for the biennial course for a degree of Doctor in Statistical and Demographic Sciences. In addition to these, there were 106 outside (fuori corso) students, who took the biennial course for the Diploma in Statistics, 47 for the biennial course for the degree of Doctor in Statistical and Actuarial Sciences, 19 the biennial course for the degree of Doctor in Statistical and Demographic Sciences.

Many foreign students have enrolled in the Faculty, some of them sent by their governments to obtain this specialization in statistics. The Faculty has given them particular attention, and, returned to their homelands, they today fill directive posts in government central statistical offices and in scientific organizations.

During the academic year 1949-50, under the Fulbright Plan agreements, Dr. Felix Bernstein of the Universities of New York and Syracuse, gave a course of lessons at the Faculty of Statistical Sciences on subjects relating to the methodology of Statistics, and another course on Biometrical subjects.

In addition to the teaching activity above summarized, the Faculty of the Statistical Sciences carries on a more directly scientific activity through its affiliated Institute of the Actuarial Sciences and Institute of Statistics.

The former is still in process of being organized. It has a small specialized Library.

The Institute of Statistics, directed by Prof. Gini, has its own quarter with specialized library, calculating machines and a staff of four paid and seven volunteer assistants. It is open to students of other Faculties also, and is particularly frequented by students of the Faculties of Political Sciences and Law who are taking the statistics courses. It has at its disposition a scholarship fund, for which graduates and students of other Faculties who have passed the statistics examination may also compete.

Three magazines are issued by the Institute of Statistics:

1) *Metron* is an international magazine of statistics which is issued serially, four numbers to a volume, and each volume containing 500-600 pages. It gathers together original articles in the Italian, English, French, Spanish and German languages of statistical methodology and applications in various fields, reviews and discussions in the various sections of the statistical science, and whatever else might be of interest to those who are concerned with statistics. It also publishes a bibliography of all the works and periodicals received in exchange or as gifts. Discontinued in 1942, the issues have been resumed with volume XV.

2) *Italian Economic Life* ("Vita Economica Italiana") is issued quarterly. It is edited under the supervision of a consultative committee composed of the most important personages in government and in Italian economic life, and with the cooperation of economics institutes and of foreign economic services. Besides articles on economic statistics, it usually publishes quarterly summaries of the economic situation in Italy and in other countries, and reviews important works in economics, social politics, statistical methodology, and applications of statistics to the various

fields. Discontinued in 1943, it has not yet been resumed after the war.

3) *Genus* is the organ of the Italian Committee for the Study of Population Problems and the Italian Society of Genetics and Eugenics and is published under the patronage of the National Council of Research. Four of its issues constitute a volume of 400-500 pages. It publishes articles, discussions, notes, summaries, and communications in Italian and other languages dealing with the population problems and with genetics and eugenics; it reports on the scientific activities undertaken by the Italian Committee and the Italian Society and summarizes the Committee's and Society's research results. It also reviews the principal works dealing with demography, sociology, genetics and eugenics, and social statistics. Discontinued in 1943, it has recently been resumed with volume VI-VIII.

Besides these periodicals, the Institute of Statistics publishes scientific monographs. To date, the following have been published.

1. PAOLA MARIA ARCARI—*The National Languages of the Swiss Federation and their Changes with Time.*
2. CARLO VALENZIANI—*The Demographic Problem of Equatorial Africa.*
3. SILVIO ORLANDI—*On the Distribution of Non-Real Estate Income in Italy.*
4. LYDIA SPAVENTA DE NOVELLIS—*Prices in Greece and Rome in Ancient Times.*
5. LIONELLO CIOLI—*Orientation and Development of Political Economy Across the Years,* with introduction by Corrado Gini on "Variety and Uniformity in the Field of Economic Policy."
6. NORA FEDERICI—*On the Increase in Male Mortality during the Age-Group 20-25 Years.*
7. BENEDETTO BARBERI—*The Dynamics of the Economic Treatment of State Dependents during the Period 1913-31.*

One more scientific activity of the Institute of Statistics, started in the year 1940, remains to be recorded. In this year the Institute began a Seminar in Statistics which meets periodically and in which participate all the professors, aides and assistants of the Faculty, the scholarship winners and sometimes other students particularly competent in the material under discussion.

The sessions discuss communications on different aspects of statistical methodology and their applications to various fields. Summaries of communications, together with the discussions arising from them, are published in the *Proceedings of the Statistics Seminar;* and their complete text later sees the light in one or another, depending on character and subject matter, of the magazines issued by the Institute.

Located near the Institute is the Italian Committee for the Study of Population Problems, a scientific institution specializing in demographic research and related sciences, and possessing a rich library which has been put at the disposition of the students and others attending the Institute of Statistics.

And finally, the Institute of Statistics is host to the Italian Society of Sociology and the Italian Society of Genetics and Eugenics, which coordinate Italian studies in these fields.

COURSES AND INSTRUCTORS IN THE CURRICULUM OF THE FACULTY OF STATISTICAL, DEMOGRAPHIC AND ACTUARIAL SCIENCES AT THE UNIVERSITY OF ROME

(1) First year course in that biennial; (2) Second year course; (E) Elective.
(All courses one year unless otherwise noted)

FIRST BIENNIAL (Two electives must be taken in second year)

1. Elements of Mathematics (Prof. T. Salvemini)	1
2. Statistics (Prof. C. Gini)	1
with graphic presentation (Prof. F. Pedroni)	
3. Anthropometry (Prof. G. Genna) (½ year)	1
4. Health Statistics (Prof. G. L'Eltore) (½ year)	1
5. General and Colonial Sociology (Prof. C. Gini)	1
6. Economic Statistics I (Prof. A. Giannone)	1
7. Political and Economic Geography (Prof. R. Almagia)	1
8. Economic Statistics II (Prof. M. Saibante)	2
9. Legal Statistics (Prof. L. Camboni) (½ year)	2
10. Social Statistics (Prof. B. Grazia Resi) (½ year)	2
11. Demography (Prof. N. Federici)	2
12. Elementary Political Economy (Prof. L. Amoroso, A. Breglia and G. Papi)	E
13. Biometrics (Prof. A. Costanzo)	E
14. Anthropology (Prof. S. Sergi)	E
15. Introduction to Public and Private Law (Prof. G. Fanelli)	E
16. Other courses as approved by Dean of the Faculty	E

SECOND BIENNIAL (Demography major takes 1 elective in the first year and 2 in second; actuary major takes 2 in first year, 1 in the second)

	Demography	Actuary
1. Statistical Methodology (Prof. E. Pizzetti)	1	1
2. Development of Population (Prof. V. Castellano)	1	E
3. Biometrics (Prof. A. Costanzo)	1	E
4. Advanced Economic Statistics (Prof. B. Tenti)	1	E
5. Private and Social Insurance Law (Prof. A. Donati)		1
6. Economics and Finance Insurance Organizations (Prof. G. De Meo)		1
7. Mathematical Analysis, Algebra and Infinitesimals (Profs. A. Ghizzetti and M. Picone) (2 years)	EE	1 & 2
9. Applications of Statistics to the Physical Sciences (Prof. G. Roncali)	2	E
9. Calculus of Probabilities (Prof. G. Pompilj)	2	2
10. Actuarial Mathematics and Techniques of Private Human Life Insurance (Prof. R. Cultrera)	2	2
11. Social Insurance (Prof. B. Tedeschi)		2
12. Analytical Geometry with Elements of Projection (Prof. G. Pompilj)	E	E
13. Numerical and Graphic Calculus (Prof. Platone)	E	E
14. Advanced Political Economy (Prof. A. Breglia)	E	E
15. Ethnology (Prof. C. A. Blanc or T. Boccassino)	E	
16. Techniques of Damage Insurance (Prof. B. De Mori)		E
17. Other courses as approved by Dean of the Faculty	E	E

NOTE: The courses in Statistics, Sociology and Demography given in the first biennial are in common with the Faculties of Law and Political Science, and are attended by students of still other Faculties whose programs include the said courses. By the same token during both biennials the students in the Statistical, Demographic and Actuarial Faculty may select electives from among courses taught in other Faculties provided that in the Dean's opinion the desired courses are relevant to the student's program.

Rapid Estimation of Standard Errors of Means for Small Samples

by NATHAN MANTEL, National Cancer Institute

For the experimenter working with small groups of animals or for small samples in general, a good estimate of the standard error of the mean of his observations for making approximate significance tests can be obtained quickly by dividing the range of his data (highest observation minus lowest observation) by the number of items comprising the sample.

This technique has the advantage over other "short cuts" because it requires no tables. For example (line A in table I, below) if the readings are 44, 48, 52, 60, 61, 63, 66, 69, the range is 25. Range divided by the number in the sample, 8, is 3.12. This is the estimate of the standard error of the mean. By the usual methods of computation the estimate would be 3.15.

In general, for samples of size less than 15, this method will give estimates of the standard error of the mean with a high level of accuracy and only a small bias. Table I gives the results obtained applying this method to ten experiments, each of size eight (data supplied by Dr. George Brecher of the National Institutes of Health). Column 1 shows the individual items of each experiment ranged in order of magnitude, and column 2 the mean of the items. Column 3 shows the standard error of the mean estimated as one-eighth of the range, while column 4 gives the usual estimate $\sqrt{\Sigma(x-\bar{x})^2/n(n-1)}$ based on the sample unbiased variance. The two sets of estimates do not differ appreciably, and agree quite well in their mean.

The satisfactory results given by the use of the range divided by sample size as an estimate of the standard error of the mean has only an empirical justification when applied to samples from normal populations. For small samples from normal populations the expected value of the range is close to the standard deviation of the population times the square root of sample size. Thus, dividing the sample range for small samples by the square root of sample will give a result close

to an unbiased estimate of the population standard deviation, and division of the range by the sample size itself corresponds, in turn, to an approximately unbiased estimate of the standard error of the mean.

This approximate relationship, for small samples, between the sample range and the standard error of the sample mean seems to apply generally to a variety of distributions and is not confined to the normal distribution. As indicated in Table II, this relationship holds fairly well even for the rectangular distribution for samples up to size ten. For distributions with

TABLE II—Divisors to be applied to the sample range to obtain unbiased estimates of the standard error of the sample mean.

Sample size	Normal distribution	Rectangular distribution
2	1.6	1.6
3	2.9	3.0
4	4.1	4.2
5	5.2	5.2
6	6.2	6.1
7	7.2	6.9
8	8.1	7.6
9	8.9	8.3
10	9.7	9.0
11	10.5	9.6
12	11.3	10.2
13	12.0	10.7
14	12.7	11.2
15	13.4	11.7
20	16.7	14.0
30	22.4	17.7
50	31.8	23.5
75	41.6	29.2
100	50.2	34.0

TABLE I—Estimation of the standard error of the mean

Experiment	Sample Data (1)	Mean (2)	Estimated Standard Error range /n (3)	$\sqrt{\Sigma(x-\bar{x})^2/n(n-1)}$ (4)
A	44,48,52,60,61,63,66,69	57.88	3.12	3.15
B	46,51,54,55,56,61,71,75	58.62	3.62	3.50
C	47,49,51,51,57,62,64,65	55.75	2.25	2.54
D	51,51,54,56,59,60,62,64	57.12	1.62	1.74
E	50,55,56,56,59,59,63,69	58.38	2.38	2.02
F	48,50,54,56,57,58,61,62	55.75	1.75	1.74
G	47,49,54,58,58,58,59,63	55.75	2.00	1.91
H	49,52,52,54,54,63,65,68	57.12	2.38	2.51
I	44,48,54,55,55,58,59,53	54.50	2.38	2.15
J	33,45,49,51,51,52,54,57	49.00	3.00	2.60
	Average		2.45	2.39

greater than normal kurtosis the relationship should tend to be satisfactory for larger sample sizes.

To give a basis for finding the bias of this short cut method, Table II is given. In this table the exact divisors which should be applied to the sample range to obtain unbiased estimates of the standard error of the mean are given for both the normal and the rectangular distributions. The values for the normal distribution are derived from Tippett's [1] tabulation of mean range/σ by multiplying his factors by $\sqrt{n}$. The rectangular distribution values are calculated using the relationship:

$$\text{Mean sample range} = \frac{(n-1)}{(n+1)} \times \text{population range}$$

Comparison of the three columns in Table II shows that the short-cut bias is small for small values of n.

For the normal distribution this bias is on the order of 10 percent or less for n$<$15. It should be noted that using the sample unbiased variance to estimate the standard error of the mean also results in biased estimates of the standard error, the biases being comparable, for small samples, to the biases of the method suggested here.

REFERENCES

[1] Tippett, L. H. C., "On the Extreme Individuals and the Range of Samples Taken from a Normal Population," Biometrika 17 (1925), 364.

[2] Davies, Owen L., "Statistical Methods in Research and Production," Oliver and Boyd, (second edition revised 1949), London, pp. 32-33.

[3] Pearson, E. S., "Some Notes on the Use of the Range," Biometrika 37 (1950), 88.

NEWS

Planning Research Branch Established by the Office of the Comptroller of the Army

The Program Review and Analysis Division of the Office of the Comptroller of the Army has established a Planning Research Branch. The new branch in addition to participating in the Joint Inter-Industry Economics Research Project, established by the Division of Statistical Standards, will apply the theory of games, linear programming and input-output analysis to the analysis and testing of the Army's planning problems. The unit will have high speed computing devices at its disposal.

The Chief of the new branch is Lieutenant Colonel Carl L. Rickenbaugh, the Assistant Chief is Howard Dunn. Members of the staff include Captain Victor J. R. Baran, formerly with the Bureau of Population and Economic Research and Economic School at the University of Virginia; Elvin A. Hoy, formerly head of (Section A) Applied Sciences and Mathematics, Navy Training Publications Center of the United States Navy; Irving I. Warran, formerly with the Biometrics Section, National Cancer Institute; Captain Joseph W. Garbarino who has taken leave from the faculty of the School of Business Administration at the University of California; Pfc. Peter D. Sternlight, formerly of the Foreign Research Division, Federal Reserve Bank of New York; and Sidney Kaplan, formerly with the Applied Mathematics Division of the Naval Ordnance Laboratory, and more recently with the Bureau of Employment Security, U. S. Department of Labor.

WHO Statistical Centre

The World Health Organization has established a statistical center in London to study problems arising in the application of the International Statistical Classification of Diseases, Injuries and Causes of Death. The WHO Centre will be located at the General Register Office, Somerset House, London W. C. 2, England, and will be directed by Dr. P. Stocks, formerly Chief Medical Statistician to the Register-General of England and Wales.

The principal activities of the center will be study and resolution of coding difficulties experienced by national offices using the Classification; study of the various condensed lists coming into use for different purposes; to advise on the most useful condensations and avoid too much diversity in suplementary lists; and similar study of the elaborations of the classifications made for special purposes. The center was established on recommendation of the Expert Committee on Health Statistics. Recommendations and reports of the center will be made to the Expert Committee.

Statistical Bulletin of Metropolitan Life

The Metropolitan Life Insurance Company issues a monthly Statistical Bulletin containing timely articles on public health, vital statistics and population characteristics and trends. Members of the Association who would like to be placed on the mailing list should address their request to The Editor, Statistical Bulletin, Metropolitan Life Insurance Company, 1 Madison Avenue, New York 10, N. Y.

THE PSEUDO THIRD DIMENSION

by Kenneth W. Haemer

There are two opposite schools of thought about giving charts a third-dimensional look. One school holds that this technique is an invaluable aid: the other, that it's an unmitigated nuisance. This article, taking a view slightly to the right of center, limits itself to pointing out some of the problems of this style, and a few half-remedies that can be used to overcome them.

Let's admit at once that there is nothing wrong with novelty if it helps to do the job better. The trouble is that
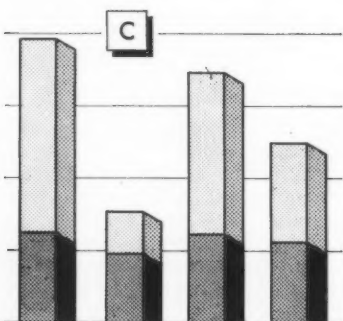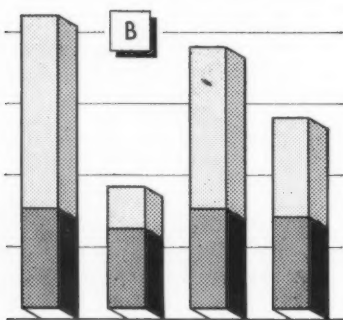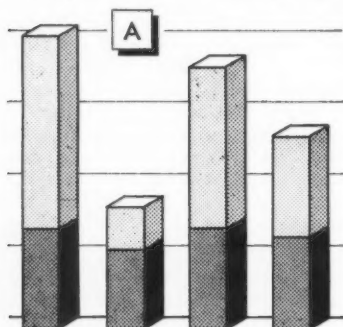
sometimes novel styles are used just for the sake of novelty, or to satisfy the draftsman's urge to show what he can do. The real test of an unusual treatment is the work it does in helping the reader to understand and remember what you are trying to tell him. Unfortunately, the decorative third dimension doesn't always do this—especially if used by someone who isn't aware of its faults and weaknesses.

The basic trick in using this style is very simple. By merely adding a side and and end to an otherwise plane surface, you can give it depth and solidity, making the bars look as though a carpenter had cut them from two-by-fours. However, there are many ways to present the third dimension, and there are pitfalls in all of them.

Sketch A shows a simple version of the looking-down or bird's eye point of view. In this perspective, the reader is given two top edges of the bar to choose from; and the question is, should he measure the length of the bar to its front or back edge? (The more elevated the point of view—and the thicker the third dimension—the further apart these two lines become.

In this type of presentation, scale rulings seem more confusing than useful. One solution is to omit them and substitute a figure at the top of each bar. But this means showing a figure for every bar subdivision also; and when there are numerous bars or several subdivisions this really clutters up the chart.

The worm's-eye view shown in Sketch B has the same faults in reverse and besides, seems like an unnatural point of view for looking at a chart. You find yourself wondering what is holding it up.

Sketch C attempts to avoid these problems by combining the conventional base line and scale rulings with bars that slope from the top as in Sketch B. (It assumes that the base is exactly at eye level and therefore appears as a line.) If you must use three-dimensional bars, this is one of the easiest and safest methods.

However, even this method can get you into trouble if you are not careful, as seen in Chart D, a prize exhibit copied from the annual report of a large manufacturer.

The finely divided amount scale certainly suggests that you can read the height of the columns with some accuracy: but if you try to do this you will find that the designer has turned the columns so that each has three different points at the top. The trick of subdividing the side of the columns instead of the front, probably seemed like a good idea; and might have been if the designer hadn't switched from a sloping to a horizontal dividing line. Even the key

INCOME AND TAXES
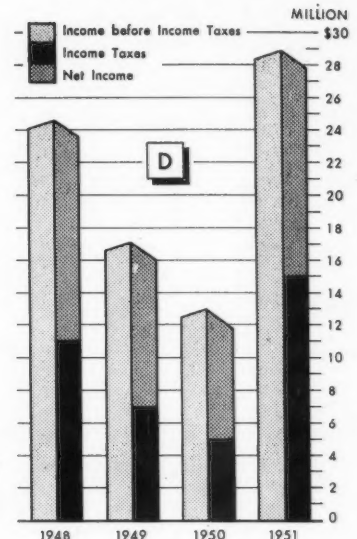
is slightly confusing because the pieces do not follow the arrangement of the items they represent.

Certainly the attractiveness of the novel treatment used in this chart (printed in three colors) was more than outweighed by its awkwardness.

The general judgment on the value of the cubic treatment appears to be this: unless it really helps to tell the story better beware of it. Be sure the gain in interest is likely to be more than the loss of clarity and preciseness. Remember that it takes more planning, more space on the page, more drafting time, and often more effort on the part of the reader.

If you can't resist this device, be sure that you use it in a way that will give your reader the least trouble:

1. Keep the third dimension thin, and avoid dramatic perspectives that produce sharp slopes.
2. Use the same perspective point of view throughout a series of charts.
3. Shade the *front* of the columns (or bars) with the strongest tone or color. If the top or bottom surfaces show, keep them light so that they don't add to the length of the columns.

Only an extremely skilled artist can break these rules and get away with it: even the above-average draftsman will get into trouble if he ignores them.

NEWS about MEMBERS

A Paul H. Anderson has transferred from the Department of Defense to work with the U. S. Bureau of Mines.

B Earl L. Bailey, Jr., has accepted a position as Assistant Director for Business Research in the Bureau of Business Research at the University of Mississippi.

T. A. Bancroft has been appointed Head of the Department of Statistics and Director of the Statistical Laboratory, Iowa State College.

Martin K. Barnett, formerly with the University of Dayton, is now a research chemist at Mound Laboratory, Monsanto Chemical Company, Miamisburg, Ohio.

Z. William Birnbaum formerly with the University of Washington has accepted a visiting professorship in mathematical Statistics at Stanford University for the academic year 1951-1952.

Lotus B. Blackwell, formerly with the Texas Technical College at Lubbock, has been recalled to active military service and is working in the Pentagon.

Edgar F. Borgatto has left New York University, Department of Sociology, to work as a Research Associate in the Laboratory of Social Relations at Harvard University.

David W. Bussell has been recalled to active duty in the Supply Corps of the navy. He is assigned to the Controlled Materials Branch of the Inventory Control Division.

C Alan D. Carey has completed his work for a Doctorate at Texas University and has returned to his former position as Assistant Professor of Business Statistics and Statistician at the Bureau of Business Research, University of New Mexico.

Henry P. Caulfield, Jr., has returned from Europe where he was working with the International Statistical Institute to join the Program Staff of the Office of the Secretary at the Department of the Interior.

Dwight W. Chapman has resigned as Executive Director of the Committee on Human Resources of the Research and Development Board of the Department of Defense to accept a position as Professor of Psychology at the University of Michigan.

C. West Churchman has taken leave for a year from Wayne University and is now a Visiting Professor in the Engineering Administration Department of the Case Institute of Technology in Cleveland. He is working on operations research as applied to industry.

Edward P. Coleman has left Columbia University to work as a Research Statistician in the Research and Development Laboratories of the Hughes Aircraft Company. He is also teaching Engineering Statistics in the industrial statistical program at the University of California at Los Angeles.

Edward L. Corton, Jr., has transferred from China Lake to work as a meteorologist in the Navy Hydrographic Office in Washington, D. C.

Robert J. Crabb has joined the firm of Larry Smith & Company, real estate consultants specializing in commercial real estate, with central offices in Seattle, Washington.

Frederick E. Croxton, who is Professor of Statistics at Columbia University, has recently taken on two additional assignments at that institution. He is Special Assistant to the Vice President and Provost, and also Interim Director of Admissions.

D John T. Dailey has left the Human Resources Research Center at Lackland Air Force Base to take over as replacement for Dr. Brundage as Chief of Classification and Survey Research at the Bureau of Naval Personnel.

Arthur M. Dutton received his Ph.D. in Statistics from Iowa State College and has returned to work with S. L. Crump at the University of Rochester, Atomic Energy Project.

E Allen L. Edwards has just completed a year of work under a Social Science Research Council Research Training Fellowship. He was working with L. L. Thurstone at the University of Chicago. During the past summer he worked as a consultant to the Instructional Film Research Project at Pennsylvania State College. He has now returned to the University of Washington as Professor of Psychology. He will, however, spend half-time in research on problems of measurement of social attitudes and personality traits under a Faculty Research Fellowship from the S.S.R.C.

F Abbott L. Ferriss is now Assistant Director, Military Management Directorate, Human Resources Research Institute, at the Air University, Maxwell Air Force Base in Alabama. He is on leave of absence from Vanderbilt University.

John Firestone has left the staff of the College of the City of New York to work with the Chicago regional office of the Bureau of Labor Statistics as price economist.

Leonard L. Fischman has been appointed Editor of the Minerals Yearbook published by the U. S. Bureau of Mines.

Seymour Friendland has left his position as Labor Economist with the Bureau of Labor Statistics in Washington to accept the position of Instructor of Economics at Middlebury College, Vermont.

Lloyd K. Friedman has accepted a position as Actuary of the Girard Life Insurance Company.

G Leon S. Geoffrey, formerly chief of the Economic Coordination Section, Field Division, at the Bureau of the Census, has transferred to the National Production Authority.

Charles P. Gershenson, after working for over five years as Research Associate at the Institute of Psychology Research, Teachers College, Columbia University, has accepted a position as Research Director of the Jewish Children's Bureau of Chicago. This new job will entail the development of a research program for evaluating the effectiveness of small residential units for the treatment of emotionally disturbed children.

William E. Gordon has accepted a position as Research Professor in Social Work on the faculty of the George Warren Brown School of Social Work of Washington University in St. Louis. His assignment is to conduct basic research in social work phenomena.

Bert F. Green, Jr., is now a member of the research staff of the Research Laboratory of Electronics at M.I.T.

Myron Greenwald, formerly with the Management Engineering Section of the Bureau of Aeronautics at the Navy Department, has transferred to the Defense Requirements Branch, Construction and Inspection Division of the Atomic Energy Commission.

29

William Grodowitz has accepted a position with the Biometrics Division of the Surgeon's Office of the Department of the Air Forces at the Pentagon. He will be working as an Analytical Statistician concerned with organizing and analyzing morbidity reporting.

Ruth B. Gysbers has accepted a position as a Mathematician with the North American Aviation Company, Downey, California.

H

Kenneth J. Hartman, Institutional Representative for Deere & Company gave a paper on "Analysis of Variance" before the Business and Industrial Division of the American Psychological Association at its National Convention in Chicago during the first week in September.

Charles E. Hawkins has left the Division of Welfare of the Missouri Department of Public Health to work in the Assistance Analysis Branch of the Division of Program Statistics and Analysis of the Social Security Administration.

Samuel P. Hayes, Jr., has resigned his position as Director of the Program Planning and Advisory Staff of the Technical Cooperation Administration of the Department of State and joined the Economic Cooperation Administration as Chief of the Special Technical and Economic Mission to Indonesia.

Robert E. Herman has transferred from the Public Housing Administration to the Office of the Chief Economist of the Bureau of Mines as a survey statistician.

J

William C. James has left the National Safety Council to join the staff of the National Office of Vital Statistics as International Consultant in Vital Statistics working in Latin American countries. He is assigned to Lima, Peru.

K

Henry Paul Kelley has received a Psychometric Fellowship from the Educational Testing Service at Princeton, New Jersey.

B. F. Kimball has accepted a position with the Albany office of the Public Service Commission. He will be engaged on general research problems involving sampling theory.

Calvin J. Kirchen is now working as the Quality Engineer at the Physicists Research Company, Ann Arbor, Michigan.

Howard J. Kumin has left the Bureau of the Census to accept a position with the Puerto Rican Development Corporation.

L

Arthur S. Littell has received his Doctor of Science degree from the Johns Hopkins University School of Hygiene and Public Health. He has accepted a position as Instructor of Biostatistics, Department of Preventive Medicine, School of Medicine, Western Reserve University.

Lawrence C. Lockley has resigned as Professor of Marketing at the Graduate School of Business Administration, New York University, to become Dean of the School of Commerce and Professor of Business Administration at the University of Southern California.

Irving Luckom has accepted a position as Assistant Chief in the Planning Branch of the Management Division of the Air Force Finance Center at Denver, Colorado.

H. M. C. Luykx, formerly with the Atomic Bomb Casualty Commission is now chief of the Biometrics Division of the Office of the Surgeon General of the U. S. Air Force.

M

Charles L. Marks, formerly on the faculty of George Washington University, joined the staff of the Financial Reports Division of the Federal Trade Commission as a statistician specializing in sampling.

Mervin R. Marks is Statistical Advisor in the Personnel Research Archives section of the Adjutant General's office of the Department of the Army. He is responsible on a coordinate level for the design of experiments and completely responsible for processing of data of studies in personnel research.

Daniel Marx, Jr., has completed his research on international shipping cartels at the Institute for Advanced Study and has returned to his position of Professor of Economics at Dartmouth College.

Peter F. Merenda has been reassigned from the U. S. Naval Examining Center at Norfolk, Virginia, to the Center at Great Lakes, Illinois. The Examining Center is responsible for the development, production, scoring and analyzing of achievement examinations employed in the competitive advancement of petty officers in the U. S. Navy and Naval Reserve.

N

John D. Neff has accepted an appointment with the Department of Mathematics at Purdue University as a half-time graduate teaching assistant for the academic year 1951-1952.

Samuel C. Newman has resigned as Chief of the Marriage and Divorce analysis Branch, National Office of Vital Statistics, to join the faculty of the Department of Sociology at the University at Akron.

Samuel C. Newman has left the New York office of Vital Statistics of the Public health Service to join the Department of Sociology at the University of Akron.

Max H. North, has left the Bureau of the Census to work in the Division of Prices and Cost of Living in the Bureau of Labor Statistics.

O

Andrew P. Orth has accepted a position as Chairman of the Department of Social Science and Business Administration at Cedarville College, Cedarville, Ohio.

Mollie S. Orshansky, formerly of the Department of Agriculture, has been named Director of the Program Statistics Division of the Wage Stabilization Board.

P

Robert Perloff is now a research psychologist with the Personnel Research Section of The Adjutant General's Office, Department of the Army, Washington, D. C.

S

Lester Sartorius, formerly an instructor and research associate at the University of Minnesota, is now an assistant professor of statistics in the College of Commerce and Business Administration at the University of Illinois, Urbana.

Mary Ann Savas has accepted a position as a statistician with the Army Air Forces in Washington, D. C.

Edward M. Schrock has accepted the position of Supervisor of Quality Control with the Lukens Steel Company at Coatesville, Pennsylvania.

Erich A. Schultz has returned from Tokyo and is now working in the Los Angeles District Office of the Office of Price Stabilization, as an economist.

Walter L. Slocum, formerly chief of the Research Division, Office of Vocational Rehabilitation and Education of the Veterans Administration in the District of Columbia, has joined the staff of the State College in Washington as Chairman of the Department of Rural Sociology.

Alpheus T. Steele has left Drake University to go to the College of Business, Cleveland College at Western Reserve University.

Nancy Symons has accepted a position as statistician at the Personnel Research Institute, Cleveland College of Western Reserve University.

T

Saleh I. Toulan has left Columbia University to return to his home in Cairo, Egypt where he is with the Egyptian Statistical Department.

V

Theodore A. Veenstra has been transferred to the position of Field Office Economist with the Chicago Office of the Public Housing Administration.

W

Edward S. Weiss has left the Division of Tuberculosis, U. S. Public Health Service in Washington and is now with the Arctic Health Research Center at Anchorage, Alaska.

Howard Wiener has recently been appointed to the Research Department of Warwick and Legler, Inc., an advertising agency in New York City.

Franz Wolf has left his position in private business in New York to accept the position of Chief of the Research and Statistics Division in the Office of Economic Policy in the Office of Price Stabilization.

Alonzo E. Wood, Jr., has transferred from Norfolk as an Analytical Statistician with the Navy Department, Bureau of Supplies and Accounts, Washington, D. C.

Z

Marvin Zelen has joined the staff at Stevens Institute of Technology to work as a mathematician with the Experimental Towing Tank.